

# **Cancer and Chronic Disease Prevention in the Workplace:**

A Situational Analysis of Workplace Cancer  
and Chronic Disease Prevention for HPDIP  
Workplace Wellness Programming

August 10, 2010



---

**Table of Contents**

<b>Topic</b>	<b>Page #</b>
Table of contents .....	I
Acknowledgements .....	II
Executive summary .....	IV
Introduction .....	1
Chapter 1: Theory for the workplace wellness programming .....	3
Chapter 2: Cancer profile and modifiable risk factors .....	9
Chapter 3: Current state of evidence for Alberta’s top six industries .....	19
Chapter 4: Economic assessment of workplace wellness initiatives .....	40
Chapter 5: Guiding principles of successful workplace wellness programs and best practices .....	49
Chapter 6: Conclusions and next steps .....	71
References .....	81
Appendix A: Glossary.....	91
Appendix B: Key Alberta demographics.....	95
Appendix C: Workplace Wellness Survey Final.....	97
Appendix D: Profiles of Alberta’s Six Largest Industries.....	120
Inventory of HP-DIP workplace wellness initiatives	N/A

## **Acknowledgements**

As part of the first step in developing a comprehensive action plan related to preventing chronic diseases in Alberta, the Alberta Health Services, Health Promotion, Disease and Injury Prevention Division conducted a Situational Analysis to assess the evidence regarding the effectiveness as well as the economic impact of worksite interventions. This report serves as a point-in-time (Snapshot) resource to guide the design and planning of Workplace Wellness initiatives with a particular focus on primary prevention of cancer and chronic diseases.

### **Report prepared by**

- Mr. Patrick Curley, Research Associate, Alberta Health Services - Surveillance & Health Status Assessment (Public Health Innovation and Decision Support)
- Ms. Shannon Doram, Program Coordinator, Workplace Wellness, Alberta Health Services – Health Promotion, Disease and Injury Prevention (Chronic Disease Prevention & Oral Health)
- Ms. Jocelyn Strath, Research Associate, Alberta Health Services - Surveillance & Health Status Assessment (Public Health Innovation and Decision Support)
- Ms. Marlynn Kennedy, Program Officer, Workplace Wellness, Alberta Health Services – Health Promotion, Disease and Injury Prevention (Chronic Disease Prevention & Oral Health)
- Ms. Monica Schwann, Manager, Workplace Wellness, Alberta Health Services – Health Promotion, Disease and Injury Prevention (Chronic Disease Prevention & Oral Health)

### **Report reviewed by**

- Ms. Bretta Maloff, Executive Director, Health Promotion, Disease and Injury Prevention, Alberta Health Services.
- Dr. Sandra Delon, Director, Chronic Disease Prevention and Oral Health, Health Promotion, Disease and Injury Prevention, Alberta Health Services.
- Dr. Lorraine Shack, Research Program Lead, Alberta Health Services - Surveillance & Health Status Assessment (Public Health Innovation and Decision Support)

## Acknowledgements

The authors gratefully acknowledge the following individuals and organizations for their contribution to the development of various elements of this report:

- Dr. Lisa Petermann, Program Lead, Alberta Health Services - Surveillance & Health Status Assessment (Public Health Innovation and Decision Support)
- Members of the AHS Cancer Surveillance, Surveillance and Health Status Assessment division, Population and Public Health for their expertise in compiling and analyzing data
- HDR Decision Economics for their assistance in conducting the economic assessment of workplace wellness initiatives
- Oracle Poll Ltd for their assistance in conducting the provincial workplace wellness survey.

Special acknowledgement is given to Ms. Nancy Dubois, Owner and Principal Consultant, DU B FIT and Dr. John Yardley, President, Metrics @ Work for their time, comments and review of this report.

A sincere thank you is also extended to all of the respondents and their colleagues who generously gave their time and knowledge by participating in this Situational Analysis.

**Suggested Citation:** Alberta Health Services (2010). Review of Cancer and Chronic Disease Prevention in the Workplace: A situational analysis of cancer and chronic disease prevention for HP-DIP Workplace Wellness programming. Calgary, Alberta: Alberta Health Services.

## Executive Summary

### Background

Chronic diseases are conditions of concern, because of the significant burden they place on individuals, communities and health services. Yet many chronic diseases are highly preventable, and effective action on prevention is, therefore, a high priority. Chronic diseases – which include cardiovascular conditions, some cancers, chronic respiratory conditions and type 2 diabetes – are projected to account for 89% of all deaths in Canada. The World Health Organization (WHO, 2010) predicts that over the next 10 years in Canada:

- Over 2 million people will die from a chronic disease
- Deaths from chronic diseases will increase by 15% - most markedly, deaths from diabetes will increase by 44%
- Prevalence of overweight in Canada is expected to increase in both men and women over the next 10 years.

Chronic diseases create large adverse economic effects on families, communities and countries. Almost half of those who die from chronic diseases are in their productive years. In 2005 alone, it is estimated that Canada will lose 500 million dollars in national income from premature deaths due to heart disease, stroke and diabetes. The economic consequences – driven by productivity reduction and increase in costs caused by these diseases among workforces – are dramatic.

This situational analysis specifically looks at the workplace as a setting for interventions designed to reduce the risk of chronic diseases. Workplace wellness has been defined as “a composite of physical, emotional, spiritual, intellectual, occupational, and social health; health promotion is the means to achieve wellness” (Reardon, 1998). The aim of the report is to provide insight into the evidence for the effectiveness as well as the economic impact of worksite interventions for chronic disease prevention. As a setting, the workplace is second only to the education system in its effectiveness as a population based approach to health promotion and chronic disease prevention (Plotnikoff, Pordaniuk, Fein & Milton, 2005).

### Purpose

Alberta Health Services has produced this situational analysis (SA) to guide the planning and programming efforts for the prevention of chronic diseases in working adults through worksite interventions. This research will serve as a foundation to inform the planning of primary prevention programs that address employee risk factor modification, the

implementation of health-promoting workplace policy, and the mobilization of workplaces to create environments where healthy choices become easier choices.

## **Scope**

The situational analysis explored what types of primary prevention programs in the workplace are likely to be most effective in (a) changing risk factors for chronic disease and (b) reducing rates of chronic disease.

Although the scope of this report was originally focused on only cancer, it was later expanded to consider other chronic diseases. For the purposes of this report, the following four risk factors were addressed:

1. Tobacco use / Smoking behavior
2. Nutrition
3. Physical activity
4. Healthy body weight

This situational analysis did not specifically address alcohol or stress as risk factors, although their importance in chronic disease prevention is recognized. Work is currently being conducted by Alberta Health Services on the association between these risk factors and chronic disease external to this report.

## **Situational analysis as an approach to the development of a comprehensive workplace wellness strategy**

The objective of this SA is to examine if (and what types of) workplace interventions are effective at promoting risk reduction behaviours relevant to the prevention of cancer and other chronic diseases. This report includes several components:

- An overview of demographic and statistical indicators, economic costs and facts related to Alberta's most prevalent chronic diseases, including the prevalence of cancer in Alberta;
- A profile of the top 6 industries in Alberta
- An economic analysis of the direct and indirect economic costs and benefits of workplace wellness initiatives, specifically examining cancer related factors.
- A review of published literature of best practices in workplace wellness
- A needs assessment of Alberta workplaces, including extensive inventories of the structures, policies and services that are found in Alberta's workplaces
- Actions and recommendations that should be taken across Alberta's workplaces to improve population health outcomes regarding cancer prevention and other chronic diseases.

## **Clear Scientific Evidence of Benefits of Workplace Wellness Programming**

Conclusive evidence from the literature and best practice reviews, case studies and surveys of Alberta's industries confirms that the workplace has enormous potential as both a determinant of health and setting for improving the health of the adult population. Workplace wellness has been defined as "a composite of physical, emotional, spiritual, intellectual, occupational, and social health; health promotion is the means to achieve wellness." Workplace wellness programming has been associated with a reduction in health risks and promotion of healthy lifestyles; and with improvements in economic and productivity factors including medical costs, compensation benefits, employee absenteeism, job satisfaction and productivity.

For example, a joint report by the WHO and the World Economic Forum notes there is clear and persuasive evidence that many workplace wellness programmes targeting non communicable disease have been successful at improving employees' health by reducing risk factors, increasing employees' fruit and vegetable consumption, improving employee engagement and productivity, and producing return on investment (through cost savings and increased productivity) (World Economic Forum/WHO, 2008).

Consistent in the literature, the benefits of workplace health promotion are extensive, including positive outcomes for the employer, employees and the community at large:

### **Benefits to the employer**

- Reduced absenteeism
- Reduced presenteeism (being at work but not being "on the job")
- Increased performance and productivity
- Improved employee engagement
- Reduced health care costs and return on investment (improved productivity, reduced absenteeism)

### **Benefits to the employee**

- Increased health knowledge
- Physical benefits: weight loss, improved physical fitness, being smoke free
- Reduced risk of chronic disease
- Enhanced energy and resilience
- Stress/depression reduction

### **Benefits to the community**

- Contribution to public health by reaching diverse groups
- Reach of workplace programs can extend beyond the workplace to employees' families, friends and social groups

- Reduced burden (direct and indirect costs) on public services, including the prevention of obesity and chronic disease

### **Rationale for workplace wellness strategies**

#### **Economic assessment and return on investment (ROI)**

There is strong evidence that workplace wellness initiatives not only assist in reducing the risk of cancer and other chronic diseases in employees but are also a solid investment for employers, especially over the long term. As a component of this SA, HDR|Decision Economics (HDR), in conjunction with Alberta Health Services (AHS), assessed the economic burden of cancer in Alberta. Specifically, an analysis of the direct and indirect economic costs (and benefits) of workplace wellness initiatives related to modifiable risk factors. The return on investment (ROI) for workplace wellness initiatives was based on a measure of the net “benefits” of the initiative (e.g. lower staff sickness) in relation to the cost(s) of implementing the initiative in the workplace.

The majority of ROI studies identified in the economic assessment’s initial literature review did not report the intervention’s costs (investment) required. Additionally, no studies could be found that quantified the financial outcomes in terms of cancer prevention. Some studies did however offer insight into the potential cost savings of wellness programs.

- For example, a Canadian government's corporate wellness programs reported a return of \$1.95-\$3.75 per employee per dollar spent.
- Another study reported the economic ROI for various workplace wellness programs ranged from \$3.50 saved to \$5.96 saved for every dollar spent.
- *Canada Life Insurance* also reported that they saved \$3.43 for every \$1 spent on its fitness (physical activity) programs.
- Another study suggests that for a cost of \$100 to \$150 per employee per year, employers should expect a comprehensive health assessment risk of employees, a targeted feed-back, follow-up intervention programs and a high participation rate. It was recommended that employers should dedicate 5 to 10 percent of a wellness budget to program evaluation.

The results of our economic assessment of workplace wellness showed the expected discounted cost savings of implementing a multi-tiered workplace wellness program in Alberta, from 2008 to 2050, is estimated at \$11.5 billion, or approximately \$274 million per year. These findings provide meaningful insight as to the potential ROI from implementing a comprehensive workplace wellness program in Alberta, specifically through targeting modifiable risk factors in the workplace.

## **Workplace wellness initiatives in Alberta's top six industries**

Many important findings emerged during a survey conducted on current and past workplace wellness initiatives in Alberta's top six industries. For example, physical activity was recognized as being the most important to both employers and employees. Additionally, we learned that few Alberta employers evaluated their specific wellness initiatives at least annually or track health improvements from workplace wellness initiatives. Findings such as these helped shape our actions and was essential for identifying gaps and areas to focus on in the future for greatest improvement. Unfortunately, due to resource constraints, the survey focused only on collecting data from workplace wellness personnel who worked in organizations with 300 or more employees. As Alberta's employers come in all shapes and sizes, each has their own set of priorities and potential challenges and opportunities

## **Guiding Principles and Best practices review**

This report endeavors to identify the most up to date and relevant information concerning workplace wellness, focusing on a review of fundamental principles of successful workplace wellness programs along with a review of best practices. Despite methodological limitations in many available studies, the results in the literature suggest that, when properly designed, WHP can increase employees' health and productivity.

These principles, including long term commitment to interventions and senior management support, emerged as common themes for employers that lead to successful and noteworthy workplace wellness interventions. Examples of these critical success factors are listed directly below. More detailed descriptions of best practices, including Canadian specific case studies, related to the modifiable risk factors for cancer and other chronic diseases have also been presented.

- The design and process adopted for this SA was based on the work of our provincial colleagues across HPDIP and other health authorities who have commissioned similar projects, including SA's in tobacco, skin cancer prevention, physical activity and nutrition. The intention of this review was to produce an effective "snapshot" in time to inform our collective efforts towards cancer and chronic disease prevention through workplaces in Alberta.
- Careful monitoring and tracking of participants contemplating or engaging in workplace wellness initiatives was identified as crucial to measure progress toward cancer prevention. Baseline, annual health assessments, including discussing the needs and preferences of participants is needed when designing and implementing interventions.

- Senior management can help create an environment conducive to risk factor modification by demonstrating long term commitment to workplace wellness interventions and establishing workplace wellness policies.
- Another key finding that emerged was the vital role played by stakeholders, both inside and outside of the workplace, on influencing workplace wellness programming and helping ensure the success of workplace wellness interventions. Stakeholders who would be essential in this process include: Government partners, private, public and not-for-profit organizations, benefit providers, insurance agencies or councils. As partners, it will be valuable to engage these groups in the design and piloting of workplace wellness interventions.
- Health promotion research has consistently shown that health behaviors are strongly influenced by families and social networks. As such, it can be argued that the most successful workplace wellness programs are inclusive and extend their health promotion services to employee spouses and family members to broaden their positive impact. By expanding wellness programming to family members, employers give recognition to the fact that their employee's health is determined by an interdependent set of factors including lifestyle practices.

### **Recommendations and next steps**

Workplace wellness programs have been reported to have a positive influence on physical, mental, economic and social wellbeing of workers and offer an ideal setting and infrastructure to support the promotion of health to a large audience. As such, comprehensive workplace wellness will be a critical component of the AHS-HPDIP approach to chronic disease prevention both as a setting for workplace health promotion, and as a strategy for improving health behaviors of Alberta's working population.

The following recommendations and action steps provide a synthesis of key findings from the literature that have implications and concrete suggestions for Alberta workplaces, along with specific actions for AHS-HPDIP moving forward.

- 1) Successful workplace wellness programs are comprehensive in nature and have multiple integrated components.
- 2) Successful workplace wellness programs need to involve committed senior management and the top company leaders (i.e. CEOs).
- 3) Workplace wellness programs should measure (and demonstrate) a clear return on investment (ROI).
- 4) Planning and supporting a culture of health: a long term commitment to workplace wellness involves participation from the organization and its employees.

- 5) Workplace wellness programs should consider using creative incentive-based programs to maximize participation.
- 6) Workplace wellness programs must include continuous, systematic monitoring, tracking and evaluation of their effectiveness.

Although the situational analysis produced a significant amount of useful information and filled in critical knowledge gaps there is still much to be learned about Alberta's workplaces, the employees who work in them and about the most effective practices to promote health in the workplace setting. The following action steps are recommended specifically for the AHS-HPDIP Workplace Wellness Program to explore in order to further develop and optimize the delivery of workplace wellness programs in Alberta.

**1) Develop a research plan to learn more about the state of workplace wellness programming in Alberta, including:**

- a. Review existing programs, health standards, policies and criteria for workplace wellness programs;
- b. Learn more about employee and family assistance providers (EFAP's), benefits and insurance providers;
- c. Expand the workplace wellness situational analysis to include additional risk factors for chronic diseases;
- d. Survey small businesses and employees in Alberta about workplace wellness and support these small employers to increase their workplace wellness programming;
- e. Conduct stakeholder analysis and consultations on various issues of mutual interest, for example, best incentives to workplaces for work-site health promotion etc.

**2) Using the results of this SA**, determine the strategic directions for Chronic Disease Prevention and Oral Health's Workplace Wellness program. This will include the development of the program's functional mandate (roles, responsibilities, scope of practice) and its relationship to other program areas within Health Promotion, Disease and Injury Prevention. Built into this mandate must be a consistent, comprehensive definition of workplace wellness that focuses on impacting modifiable risk factors.

**3) Develop a knowledge exchange strategy, including:**

- a. AHS-HPDIP should establish itself as a "leader" and broker of information and resources regarding/related to workplace wellness;
- b. Develop a "business case" describing the return on investment (ROI) of workplace wellness programs for dissemination to Alberta workplaces;
- c. Devise a communication plan to deliver the business case and to connect with Alberta employers, including policy briefs where necessary.

## **Conclusion**

The ultimate objective of the findings from this situational analysis is to support the AHS-HPDIP commitment to using evidence-based practice and a population health focus for chronic disease prevention to improve the health of Albertans through its role as a leader in workplace health promotion. The research included herein will serve as a foundation to inform the planning of primary prevention programs intended to address employee risk factor modification, the implementation of health-promoting workplace policy, and the development of workplace environments where healthy choices become easier choices.

---

## Introduction

The purpose of this situational analysis (SA) is to guide the planning and programming efforts for the prevention of chronic diseases in working adults through worksite interventions. Alberta Health Services is committed to reducing the incidence and mortality rates of chronic diseases. Chronic diseases are the leading causes of death and disability worldwide. In Canada, about two thirds of all deaths are directly caused by chronic diseases. While many chronic diseases can be prevented or postponed, factors that put people at risk for them are common. Because many chronic conditions share common modifiable risk factors, people are often at high risk for more than one disease. Up to 80% of heart disease, stroke, and type 2 diabetes and over a third of cancers could be prevented by eliminating shared risk factors, primarily tobacco use, unhealthy diet, physical inactivity and the harmful use of alcohol.

Addressing these behaviours requires targeted, evidence-based strategies and initiatives. The primary prevention of chronic diseases focuses on minimizing the risk factors that are known to increase disease risk (e.g. smoking) and maximizing healthy behaviours (e.g. physical activity).

The control and reduction of modifiable risk factors would have a favorable impact on decreasing the burden of chronic diseases as current evidence suggests that;

- At least half of all new cancers are due to preventable factors and that prevention offers the most cost-effective, long-term strategy for the control of cancer (Canadian Cancer Society's Steering Committee, 2009);
- One-third of all global deaths can be attributed to cardiovascular disease (Joint WHO/FAO Expert Consultation on Diet, Nutrition and Prevention of Chronic Diseases (2002: Geneva, Switzerland), 2003 Expert Consultation on Diet, Nutrition and Prevention of Chronic Diseases (2002: Geneva, Switzerland 2003)
- The prevalence of type 2 diabetes is estimated at 150 million worldwide and is predicted to double by 2025 (Joint WHO/FAO Expert Consultation on Diet, Nutrition and Prevention of Chronic Diseases (2002: Geneva, Switzerland), 2003AO Expert Consultation on Diet, Nutrition and Prevention of Chronic Diseases (2002: Geneva, Switzerland 2003).

Experience has shown that workplace wellness programs are an important strategy to prevent the major shared risk factors for chronic diseases, including tobacco use, obesity, poor nutrition, and physical inactivity. When workplace wellness programs are successful, their influence extends beyond the individual workers to their family members and friends. Workplace wellness programs that can reduce these risk factors can ultimately decrease the physical and economic burden of chronic diseases, including CVD, stroke, and certain cancers (Stein & Colditz, 2004).

The societal benefits of a healthy employed population extend well beyond the workplace. As such, comprehensive health promotion within the workplace can improve the province's health. Historically, wellness programs have included education and screening programs in an effort to

increase individual workers' awareness of risk factors and suggest strategies to modify health behaviors. Recent evidence from the social sciences and behavioral medicine literature suggests that environmental modification and policy changes and approaches are more successful at producing sustained behavior change that can reach employees across varied socioeconomic groups (World Health Organization, 2009).

## **Goals and objectives**

Chronic diseases are conditions of great concern, because of the significant burden they place on individuals, communities and health services. Yet many chronic diseases are highly preventable, and effective action on prevention is, therefore, a high priority for Alberta Health Services. Health Promotion, Disease and Injury Prevention (HPDIP) is committed to using evidence-based, population health approaches to implement workplace wellness interventions as a means of promoting risk reduction behaviours related to chronic disease prevention. By developing comprehensive collaborative strategies that concentrate on known risk factors and defined populations, HPDIP has a unique opportunity to make a positive change in the health and well being of all Albertans across their life span.

Workplaces are a key avenue for delivery of interventions designed to reduce chronic disease among adult populations. In the 2006 census, close to 70% of Alberta's population between the ages of 15-64 years of age (approximately 1.9 million Albertans) were employed, making the workforce an ideal setting for targeted health promotion. This report will include a scan of the state of employee and organizational wellness in Alberta and determine priorities in workplace health issues relevant to chronic disease prevention and will guide the development of an integrated comprehensive approach and strategy using workplaces as a setting for chronic disease prevention programs and services.

This SA will examine if workplace interventions are effective at promoting risk reduction behaviours relevant to the prevention of cancer and other chronic diseases and the promotion of healthy lifestyles. Furthermore, it is meant to serve as a resource to inform the planning of prevention programs that address employee (and whenever possible, their families) risk factors, the implementation of health-promoting workplace policy, and the mobilization of workplaces to create environments where healthy choices become easier choices. To address these issues it will outline Alberta population demographics and worker demographics related to cancer, provide incidence and mortality statistics

of cancer in Alberta, current workplace initiatives relating to prevention, present principles of successful workplace wellness strategies and a scan of best practices in the workplace from other jurisdictions. Finally, it discusses what action needs to be taken across Alberta's workplaces to achieve improved population health outcomes regarding cancer and chronic disease prevention through workplace initiatives.

---

## **Chapter 1: Theory for workplace wellness programming**

### **The healthy workplace**

The workplace provides a unique and accessible setting to reach employed adults for health promotion and chronic disease-preventing activities (Simpson et al., 2000). As a setting, the workplace is second only to the education system in effectiveness as a front-line approach to health promotion and chronic disease prevention (Plotnikoff, Prodaniuk, Fein, & Milton, 2005). Typically adults spend more time at work than in any other setting, workforces are large and relatively easy to access, and infrastructure often exists within these settings that is conducive to workplace health promotion (Reardon, 1998). Specifically, promotion efforts can be combined effectively with existing efforts in the workplace including occupational health and safety (OHS) employee assistance programs (EAP), and disability management programs (Working Towards Wellness team of the World Economic Forum, 2008).

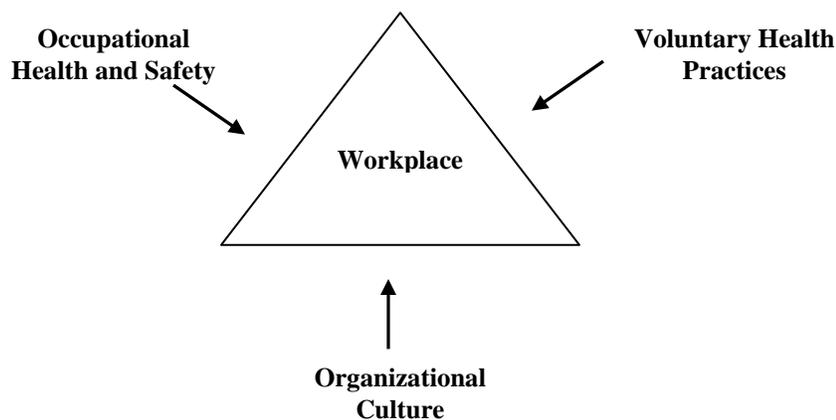
### **Workplace wellness defined**

Workplace wellness has been defined as “a composite of physical, emotional, spiritual, intellectual, occupational, and social health; health promotion is the means to achieve wellness.” It must also be recognized that wellness is complex and that issues and challenges in any of these areas can adversely affect the other areas (Reardon, 1998). At the organizational level, the World Economic Forum (2008) suggests wellness be defined in an active manner as follows “an active process through which organizations become aware of, and make choices towards, a more successful existence. For both the individual and the organization, the concept of wellness is one where active steps can be taken that reduce chronic disease and mitigate its debilitating impact on personal lives and organizational productivity (Domon, Xihong Ai, Leurent, & Nayyar, 2008)”. For the purpose of this situational analysis, the term “workplace wellness”, as defined above, will be used to provide consistency throughout the report.

Traditional occupational health and safety programs have been safety orientated, focusing on the identification of hazards in the physical environment and chemical exposure assessments to prevent worker injuries and illnesses. More recently, these programs have begun to recognize the health aspect of the workplace and encourage healthier individual behaviours by providing support, information and skill training, particularly in the area of mental health and addictions. Current evidence shows that workplace wellness programs are more effective when a wider “comprehensive” approach is used. Additionally, workplaces are now recognized for their importance as not only a setting for health promotion, but also as a key determinant of health as well. For a workplace wellness program to be “comprehensive” the program should target a range of health behaviours (or risk factors) and employ a number of methods and techniques to address the risk factors. Examples of components of a comprehensive workplace wellness program include educational and skill building training, development of workplace policies, monitoring and measurement of participant results and support for initiatives by senior management (THCU, 2004b).

The Workplace Wellness Programming team has adopted this broader definition of workplace wellness, and while acknowledging that many factors within the workplace influence health, voluntary health practices will be the primary focus of this situational analysis. A more detailed discussion of the principles of successful workplace wellness programming will be discussed in Chapter 5. The theoretical framework for employee health initiatives adopted for this situational analysis commonly separates workplace wellness into three distinct categories (Fig 1).

- At the broadest level, workplace wellness interventions can be categorized under occupational health and safety (e.g. interventions designed to protect employees from occupational hazards based on government policy and statutory requirements);
- Voluntary health practices (including healthy eating, physical activity, tobacco cessation, stress-time management, immunization), and all other individual based health behaviour change topics. This SA will focus on the voluntary health practices aspect of this framework;
- Organizational culture (approaches that focus on leadership style, management practices, workplace wellness policies, social support and pervading culture (The Health Communication Unit (THCU), 2003; The Health Communication Unit (THCU), 2004a; The Health Communication Unit (THCU), 2004b) (for more detailed definitions of these constructs, please see Appendix A).



**Figure 1:** Conceptual Framework of Workplace Wellness

## **Workplace wellness and chronic disease prevention**

Prevention (as opposed to treatment) offers the greatest potential to reduce direct and indirect costs of chronic diseases (Critelli et al., 2008). Workplace wellness programs can impact all levels of chronic disease prevention: Primary, secondary and tertiary (Goetzel & Ozminkowski, 2008; Joint WHO/FAO Expert Consultation on Diet, Nutrition and Prevention of Chronic Diseases (2002: Geneva, Switzerland), 2003 Expert Consultation on Diet, Nutrition and Prevention of Chronic Diseases (2002: Geneva, Switzerland) 2003)

The three levels of chronic disease prevention, based on the stage at which disease can be prevented or controlled, are as follows:

- **Primary prevention:** Programs that seek to prevent new cases of a disease from developing in a population. Primary prevention programs encourage general health promotion, risk factor reduction and other health protective measures. Examples include public health education about good nutrition, stress management and smoking prevention programs.
- **Secondary prevention:** Focuses on early detection and rapid treatment of disease with the goal of curing slowing the progression or reduce the negative impacts of the disease to the individual and community. Health promotion examples include blood pressure screening for hypertension directed at those who are already at high risk because of certain lifestyle behaviours (smoking, sedentary, poor nutrition, excessive alcohol consumption).
- **Tertiary prevention:** These programs are directed at employees with an existing disease such as asthma, cardiovascular disease, cancers, depression, etc with the aim of rehabilitation or slowing the progression of the disease (Pencak, 1991 in Reardon, 1998; Goetzel and Ozminkowski, 2008)(Simpson et al., 2000),(Oleckno, 2002).

## **Approaches and benefits to workplace wellness**

Formative research has shown that organizations typically tend to take an improvised approach to workplace wellness programming, as opposed to having a structured and comprehensive approach in place, before commencing with interventions. For example, research by Seed (2006) found 55 percent of New Zealand organizations surveyed take an ad hoc approach to wellness. Similarly, a 1999 study of workplace wellness of United States workplaces reported that 90 percent of workplaces offered employees at least one type of wellness-related activity; however almost all organizations did not define workplace wellness ‘activities’ or have an overarching strategy for workplace wellness or evaluate these programmes (Goetzel & Ozminkowski, 2008). For these reasons, it is very important that employers contemplating a workplace wellness intervention realize the holistic benefits of workplace wellness programming; not just potential cost savings.

---

**Benefits of workplace wellness to voluntary health practices**

Benefits of workplace wellness are extensive, including positive outcomes for the employer, employees and the community at large (Russell, 2009)

- **benefits to the employer**
  - reduced absenteeism
  - reduced presenteeism (being at work but not being “on the job”)
  - increased performance and productivity
  - improved employee engagement
  - reduced health care costs and return on investment (cost savings of improved productivity, reduced absenteeism)
  
- **benefits to the employee**
  - knowledge gained
  - physical benefits: weight loss, improved physical fitness, being smoke free
  - reduced risk of chronic disease
  - enhanced energy and resilience
  - stress/depression reduction
  
- **benefits to the community**
  - contribution to public health by reaching diverse groups
  - reach of workplace programs extends beyond the workplace to employees’ families and social groups
  - reduced burden on public services, including the prevention of obesity and chronic disease

**Alberta Health Services’ commitment to improving population health**

Improving population health has been identified as a key area of focus in the Alberta Health Services Strategic Direction 2009-2012 report. As the Alberta population continues to grow and age rapidly, the burden of chronic disease increases along with the subsequent costs of managing these diseases such as cancer. By focusing workplace wellness programs to maximize protective risk factors while reducing harmful risk factors, AHS is enabling workers to take better care of themselves and hopefully improve their future health outcomes. Making (and sustaining) positive lifestyle changes, such as increasing physical activity, will result in a healthier population, decreasing the future demand for care and treatment, enhance the long term sustainability of our health system and ultimately improve the quality of life for Albertans.

---

## **Selected modifiable risk factors for cancer and other chronic diseases**

Typically, intervention strategies for preventing cancer and premature mortality and illness associated with chronic disease are focused on four key areas: Physical activity, nutrition, healthy body weight and smoking (Simpson et al., 2000). Although stress and alcohol use, as modifiable risk factors for cancer and other chronic diseases, were reviewed, workplace wellness interventions focusing on these areas have not been included in this review. As such, workplace wellness programming in this resource document have been concentrated on the following modifiable risk factors for cancer (and other chronic disease) prevention (HDR Decision Economics, 2009):

- **Physical activity.** Despite the recognized benefits of activity (improved health and fitness, reduced disease risk etc.) most of the industrialized world does not get enough physical activity to meet public health guidelines (Plotnikoff et al., 2005). Similar to the prevention of other chronic diseases, physical activity has an important role in the prevention of cancer. The workplace can be an ideal setting to increase physical activity levels of employees.
- **Nutrition.** The World Health Organization’s Global Strategy on Diet, Physical Activity and Health (DPAS) states that “workplaces are important settings for health promotion and disease prevention. People need to be given the opportunity to make healthy choices in the workplace in order to reduce their exposure to risk” (Leurent, Reddy, Voute, & Yach, 2008).
- **Healthy body weight (Reductions in overweight and obesity).** The cost of obesity to employers and society is substantial (e.g. increased health care costs, rising health insurance premiums, decreased productivity, increased absenteeism and disability). One estimate ranks obesity above both smoking and drinking in its impact on health and health costs (Sturm, 2002 in Benedict and Arterburn, 2007; Benedict & Arterburn, 2008).
- **Smoking.** The workplace has also been shown as an ideal setting to enforce no-smoking policies and to implement smoke-free policies in company vehicles and on company property. In addition, workplace resources (Human Resources, Employee Assistance Program Providers) offer a significant opportunity to assist organizations in reducing the number of current smokers in the workplace.

A more detailed description of cancer and other chronic diseases will be provided in Chapter 2.

**Conclusions**

Overall, there is a potential for improvement in preventing cancer through targeting efforts in prevention and reduction of modifiable risk factors in the workplace. Additionally, there are notable benefits from workplace wellness programming towards the prevention of chronic diseases other than cancer through its impact on joint risk factors (e.g. reducing exposure to a risk factor for cancer is likely to reduce risk for other chronic diseases). An effective workplace wellness strategy should incorporate interventions focused toward multiple risk factors because major health risks are often inter-related, and can be linked to one or more risk factors. By leveraging broad-based programs, the interdependencies of other related health risks can be effectively targeted to maximize potential benefits (World Health Organization, 2005).

---

## **Chapter 2: Cancer profile and modifiable risk factors**

### **Introduction**

Alberta Health Services (AHS) is currently working to promote the uptake and maintenance of healthy behaviours that have demonstrated chronic disease risk-reducing effects (AHS, 2008). At the population level, this approach targets specific groups of people who, based on their demographic characteristics and related health behaviours, are at risk of developing specific chronic diseases that will inherently affect their quality of life.

The aim of this chapter is to emphasize why cancer and other chronic diseases need to be prevented. These diseases were chosen because of the substantial health impact they have on the population aged 18-65 years, which corresponds to the majority of the workforce in Alberta.

### **An introduction to cancer**

According to the World Health Organization (WHO), the term ‘cancer’ encompasses a group of diseases that can affect any part of the body (WHO, 2009). As such, cancer is not a single disease but is a general group of more than 200 specific diseases (Joint WHO/FAO Expert Consultation on Diet, Nutrition and Prevention of Chronic Diseases (2002: Geneva, Switzerland), 2003AO Expert Consultation on Diet, Nutrition and Prevention of Chronic Diseases (2002: Geneva, Switzerland) 2003). What these diseases do have in common is that they have abnormal cells within the body that are dividing and spreading without control. Depending on their cell growth and behaviour, cancerous tumours can be benign, in situ malignant, or invasive malignant. The difference between each is provided as follows (NCI, 2009):

- Benign tumour cells have mutations but appear very similar to the cells from which they originated. The tumour itself is generally encapsulated and can be removed relatively easily. Benign tumours are rarely fatal except for those arising within the central nervous system, which can cause fatal compressions of the brain.
- In situ tumours are localized; even though they contain malignant cells, those cells are confined to the site of origin without invading the organ. As such, the localized tumour can usually be removed easily without the need for further treatment. However, if left untreated an in situ tumour will invade the local organ and become an invasive tumour. For that reason, in situ tumours are considered to be pre-invasive tumours.
- Invasive malignant tumours will infiltrate adjacent tissues to gain access to further blood supplies to aid growth. If left untreated they will break away and spread through out the body, known as metastasis, ultimately leading to death.

## **An Introduction to Diabetes**

Diabetes mellitus (DM) is a disorder that results from the body's inability to sufficiently produce and/or properly use insulin. Insulin, a hormone released by the pancreas, allows cells in the body to use glucose (sugar) in the blood as an energy source. The three most commonly recognized types of diabetes are (PHAC, 2005):

- **Type 1 Diabetes:** An autoimmune disorder that typically develops in childhood or adolescence and is characterized by inadequate production of insulin by the pancreas;
- **Type 2 Diabetes:** A metabolic disorder that typically develops in individuals aged 40 years and older and occurs when the pancreas does not produce enough insulin to meet the body's needs and/or when the body's cells become less responsive to insulin (insulin resistance); and,
- **Gestational Diabetes:** A form of diabetes that develops during pregnancy due to insulin deficiency (a woman's insulin needs during pregnancy increase by 2-3 times their normal level).

Type 1 diabetes is generally diagnosed in childhood or adolescence and accounts for approximately 5-10% of all diabetes cases (Johnson et al., 2007). Research to date has yet to identify modifiable risk factors for type 1 diabetes. Gestational diabetes is transient in nature as it affects pregnant women temporarily, and it is a risk factor for the later development of type 2 diabetes. In contrast, type 2 diabetes is usually associated with onset after 30-40 years of age, and accounts for 90-95% of all diabetes cases. Subsequent sections of this SA will focus on type 2 diabetes specifically and how it can be prevented in part through a healthy lifestyle.

## **An Introduction to Cardiovascular Disease**

Cardiovascular diseases (CVD) are impairments of the heart and circulatory system that involve the heart or blood vessels (arteries and veins). In practice, cardiovascular diseases are treatable and, in some cases, reversible with treatment primarily focused on nutrition, physical activity and weight management health behaviours.

Cardiovascular diseases, or CVDs, are typically grouped into four classifications according to the Public Health Agency of Canada (2009):

- **Ischemic Heart Disease (IHD)**, a condition where the heart muscle is damaged or works inefficiently due to a reduced or absent blood supply. IHD, which is also known as coronary heart disease or coronary artery disease, is caused by any combination of genetics, increases in age, smoking habits, dietary fat intake, dyslipidemia (a disruption in the amount of lipids, which include naturally occurring fats, waxes, sterols, and fat-soluble

vitamins such as vitamins A, D, E and K, in the blood), diabetes and hypertension (or high blood pressure), amongst other factors<sup>1</sup>;

- **Myocardial infarction**, commonly known as a heart attack, where the blood supply to the heart is interrupted long enough to cause damage;
- **Heart failure (also known as Congestive Heart Failure or CHF)**, is a condition in which the heart cannot work as ‘efficiently’ as it should and pump enough blood to other organs. As a result, the circulation of blood throughout the body ‘backs up’ causing congestion in the tissues; the tissues start to swell (edema) and ‘build up fluid’ particularly in the lungs or legs; and,
- **Cerebrovascular diseases**, which include any disease or impairment of one or more blood vessels of the brain, or blood vessels leading up to the brain, that can result in neurological damage. Depending on the type of impairment, these diseases can be classified into three major types:
  - (i) **Ischemic Stroke** or impaired blood flow from the carotid arteries to the brain;
  - (ii) **Intracerebral brain haemorrhages** or bleeding of the brain; and,
  - (iii) **Atraumatic Subarachnoid Haemorrhage** or an aneurysm at the base of the brain.

The effects of a cerebrovascular disease depend on where the brain was injured and how much damage was incurred. Common after-effects include impairments in a person’s mobility, memory, understanding, speech, and other motor functions. Considered together as vascular diseases, a conservative estimate is that 1.6 million (5%) Canadians have heart disease or are currently living with the effects of a stroke (PHAC, 2009).

## **Burden of Cancer in Alberta**

Cancer incidence and mortality statistics have been collected in Alberta by the Alberta Cancer Registry since 1942. Incidence and prevalence trends along with other indicators over time (when cross referenced with changing population demographics) can aid in selection of risk factors for workplace wellness programming, as each risk factor can have a greater association with different types and locations of cancers than others. An obvious example would be targeting tobacco use as a risk factor for lung cancer in middle aged men.

### **Key cancer facts in Alberta**

#### **2006 Incidence and mortality statistics**

- In 2006, 13,100 Albertans were diagnosed with cancer (Canadian Cancer Society's Steering Committee, 2009). Prostate cancer was the leading cancer site for new cases in men (2,100) and breast cancer was the leading cancer site for new cases in women (1,750) (Canadian Cancer Society's Steering Committee, 2009).

<sup>1</sup> It is suggested that at least 50% of the risk of IHD is related to genetic predisposition or a strong family history of other forms of CVD. In combination with unhealthy behaviours and an unhealthy environment, this risk is likely to be even higher.

- In 2006, 5,200 Albertans died from cancer and lung cancer was the leading cause of death due to cancer for both men and women (Canadian Cancer Society's Steering Committee, 2009).
- The most common cancers in Alberta in 2006 were prostate (men), breast (women), lung (both sexes) and colorectal (both sexes) cancer. These four cancers combined to account for 53.5% of new cancer cases in 2006 and 50.4% of cancer-related deaths in 2004 (Canadian Cancer Society's Steering Committee, 2009).

### **Cancer comparison within Alberta**

- The number of new cancer cases in Alberta is expected to rise steadily to about 27,640 cases in 2030; mainly due to the increase and size of the Alberta population.
- Approximately 1 in 2 Albertans will develop cancer in their lifetime and 1 in 4 will die of cancer.
- Among the Albertan age group of 35-64, cancer is the leading cause of death. It causes 39% of all deaths for this age group which is more than cardiovascular disease and stroke, infectious diseases and accidental injury combined. This is a key demographic in Alberta related to workplace wellness as it a large majority of the working population.

As this 35-64 age group is also considered the “most productive” in terms of economic earnings and contribute extensively in terms of productivity in society, the impact of cancer on this group considerably affects the “indirect” costs of cancer to the wider community. A more detailed discussion of the direct and indirect economic burden of cancer can be found in Chapter 4.

### **Alberta cancer comparisons nationally**

- When Alberta’s overall cancer rate is contrasted with various provincial populations Alberta’s rate is similar to Canada’s rate.
- Across Canada, incidence and mortality rates tend to be higher in the Eastern than the Western provinces. Alberta’s cancer rates are similar to those of the other Prairie Provinces.

### **Modifiable risk factors for cancer**

A health risk factor is described by Mosby’s Medical Dictionary (8<sup>th</sup> Edition 2009) as a “disease precursor associated with a higher than average morbidity or mortality such as demographic variable, certain individual behaviours, family and individual histories and certain physiological changes”. There are many risk factors for cancer that we cannot change, such as age, sex and genetic inheritance; they are referred to as non-modifiable.

A considerable body of knowledge on the causes, inter-relatedness and prevention of cancer has accumulated over the past several decades. Many of these risk factors such as tobacco use, physical inactivity, unhealthy nutrition choices, unhealthy body weight, sun and other

environmental exposures are modifiable. There is overwhelming evidence that lifestyle factors impact cancer risk and that positive population-wide changes are necessary to reduce the burden of cancer (Curry, Byers, & Hewitt, 2003). Current epidemiology evidence links modifiable risk factors behavioural factors to a variety of cancers diagnosed in the developed world –including lung, colorectal, prostate and breast cancer (Ezzati, Lopez, Rodgers, Vander Hoorn, & Murray, 2002). Research suggests not only that modification of risk factors is possible, but it offers great potential for cancer prevention.

### **Rationale for the selection of modifiable risk factors for cancer**

There is clear evidence that health/wellness promotion programs in the workplace that target reducing risk factors have been successful at improving employee health (World Economic Forum/WHO, 2008).

An article published in the *Lancet* (2005), “Causes of Cancer in the World: Comparative Risk Assessment for Nine Behavioral and Environmental Risk Factors” investigated the impact of potentially modifiable risk factors for cancer mortality. In particular, the study identified nine key behavioural and environmental risk factors. While there may be some variations in descriptions between studies and reports, these risk factors are the most commonly reported and broadly fall into:

1. Smoking
2. Alcohol
3. Low fruit and vegetable intake
4. Overweight and obesity
5. Physical activity
6. Unsafe sex
7. Urban air pollution
8. Indoor smoke from household or other solid fuels; and
9. Contaminated injections in healthcare-settings.

This study was strongly utilized to identify the risk factors considered the most relevant to the Alberta cancer prevention efforts. However, in the workplace some modifiable risk factors are more relevant and feasible to target than others. For the purposes of the Workplace Wellness Situational Analysis, the following risk factors were chosen since they are important modifiable risk factors for prevention of cancer and are also transferable to other chronic diseases:

1. Tobacco use / Smoking behavior
2. Nutrition
3. Physical activity
4. Healthy body weight

As previously stated, some risk factors have a greater association with specific cancer sites than others. An obvious example is smoking/tobacco use and lung cancer. The cancer sites, as 13

identified by numerous literature reviews, that are most affected for each of the five risk factors are outlined in **Table 1**.

**Table 1:** Individual risk factors and association with various cancer types†

Cancer-Types	Cancer Types Affected by Individual Risk Factors				
	Smoking	Nutrition	Nutrition - Low Fruit and Vegetable Intake	Overweight and Obesity	Physical Inactivity
<b>Malignant neoplasms</b>					
1. Mouth and oropharynx cancers	X	X			
2. Oesophagus cancer	X	X	X		
3. Stomach cancer	X		X		
4. Colon and rectum cancers			X	X	X
5. Liver cancer	X	X			
6. Pancreas cancer	X				
7. Trachea, bronchus and lung cancers	X		X		
8. Melanoma and other skin cancers					
9. Breast cancer		X		X	X
10. Cervix uteri cancer	X				
11. Corpus uteri cancer				X	
12. Ovary cancer					
13. Prostate cancer					X
14. Bladder cancer	X				
15. Lymphomas and multiple myeloma					
16. Leukemia	X				
17. Other malignant neoplasms				X	

† **Source:** Danaei et al., 2005

### Excluded modifiable risk factors of cancer

In terms of identified modifiable risk factors for cancer and other chronic disease, this situational analysis has excluded unsafe sex, alcohol use and contaminated injections in healthcare settings. The decision to exclude these risk factors was made for a number of reasons. Programming to address certain risk factors, such as alcohol use and unsafe sexual practices, were outside the workplace wellness programming team's mandate. While other risk factors, such as contaminated injections in healthcare settings, were not included since they were not a risk factor for most workplace settings.

The Workplace Wellness Situational Analysis report will also exclude modifiable risk factors relating to the environment and skin cancer prevention. Since many environmental carcinogens cannot be controlled solely by workplace initiatives and policies, especially those relating to air pollution, we have decided not to focus on them. The Workplace Hazardous Material Information System (WHMIS) provides information regarding standards and the safe use of hazardous materials such as carcinogens used in Canadian workplaces.

Finally, modifiable risk factors (i.e. ultraviolet radiation) as they relate to the outdoor worker population (e.g. landscapers, lifeguards, road repair crews) will not be included in the current Situational Analysis as the Skin Cancer Prevention Unit will be examining outdoor workers in future programming.

### **Modifiable risk factors of cancer for targeting workplace wellness**

The key factors related to the following modifiable risk factors are as described (below) including limits and targets for prevention.

#### **1. Tobacco use/ Smoking behaviour**

*In this report it is to be noted that tobacco use as a modifiable risk factor is not limited to cigarette smoke. Cigar, pipe and smokeless tobacco use also increase the risk of cancer as does exposure to environmental tobacco smoke (second hand smoke).*

Tobacco remains the single leading cause of cancer deaths, accounting for 85% of all new cases of lung cancer in Canada. The risk of dying from lung cancer is more than 23 times greater in men who smoke cigarettes and about 13 times greater among women who smoke cigarettes compared to those who have never smoked. Additional cancers that have a high association with tobacco use include cancers of the oral cavity (eg. larynx, pharynx and esophagus) and urinary tract (kidney and bladder), cervical cancer and acute myeloid leukemia as well as other cancers of the stomach and pancreas.

Tobacco is also the leading cause of premature death, preventable illness and disability in Canada and Alberta. An estimated 3,400 Albertans die each year from tobacco use and thousands more suffer from other tobacco – related illness, including chronic respiratory diseases such as chronic pulmonary obstruction disorder (COPD). Over \$15 billion is expended annually in the treatment of these tobacco-related illnesses and from the lost productivity of smoking employees (Health Canada, 2009).

The rate of smoking in Alberta is slightly higher than the national average. According to the Canadian Community Health Survey 3.1 2005, Alberta's smoking rate is 22.7 %, compared to the Canada overall rate of 21.7% (Cancer Care Ontario, 2002). As of 2006 there are over 610,000 Albertans over the age of 12 who smoke and urgently need to quit.

## **2. Physical activity**

The International Agency for Research on Cancer (IARC) estimates that 25% of cancers worldwide are related to obesity and a sedentary, inactive lifestyle (Vainio & Bianchini, 2002). Generally speaking the more physically active people are the healthier they will be, with all forms of physical activity helping to prevent against various cancers. Research has also demonstrated that being physically active exerts a “cancer –preventative effect”, (through enhancing the immune system functioning and cellular development to prevent the development of cancer carcinogenesis) while physical inactivity increases carcinogenetic risk (Friedenreich, 2001; Friedenreich & Orenstein, 2002; Rogers, Colbert, Greiner, Perkins, & Hursting, 2008; Rundle, 2005).

Cancer sites demonstrating the strongest association with physical inactivity include colon and rectum cancers, corpus uteri cancer and breast cancer. Conversely, an active lifestyle has convincingly been associated with reduced risk of colon and breast cancer, probably associated with a reduced risk of endometrial cancer; and suggestively associated with risk of prostate and lung cancer (Courneya & Friedenreich, 2007; 2007).

The minimal recommended amount of physical activity needed to create an effective cancer preventative effect is equivalent to 60 minutes of moderate or 30 minutes of vigorous physical activity per day. Examples of moderate physical activity are walking, dancing, gardening or yoga while examples of vigorous activity are running, aerobics, bicycling, swimming or playing sports such as soccer, ice hockey or others where you began to perspire and breath hard (The World Economic Report/WHO, 2008).

Albertans’ jobs duties, like most other areas of the western world, are becoming increasingly more sedentary with the use of computers, web meetings and other technology. In addition, currently nearly half of Albertans report being inactive during their leisure time, or spending at least 15 hours per week being sedentary. These findings indicate that there is definitely room for improvement in physical activity in many Alberta individuals in order to reduce their risk of cancer. Examples of sedentary activities to limit include watching television, using computers and playing video games (AHS, 2009).

## **3. Nutrition**

A great deal of research has focused on the identification and understanding of the complex, multi-factorial relationship between how nutrition interacts with the risk (or reduction of risk) of cancer. In terms of cancer and chronic disease prevention, a healthy diet is one that is rich in fruits and vegetables, is limited in red meat and animal fat. The 2007 Global Report findings that stated that most of the world’s population would benefit from improved nutrition from eating primarily a plant based diet, including whole grains, brightly coloured vegetables and fruit, limiting consumption of processed and high energy dense foods such as “fast food”.

More than 58% of Albertans age 12 years and up consume less than 5 servings per day of vegetables and fruit which exceeds the national average by 4.5%. Nutrition risk factor reduction recommends that adults should consume 7-10 servings of fruit and vegetables per day. Since fruit and vegetables tend to have a lower energy density and higher fibre content, they are also aligned with recommendations for the prevention of other chronic diseases such as type 2 diabetes and cardiovascular disease.

Continuing with the recommendation of increasing fibre intake, adults should consume at least 25 grams of fibre per day by choosing fibre rich goods such as fruits, vegetables, whole grain products and pulses. Dietary fibre has a protective effect against several types of cancer in Alberta and also reduces the risk of type 2 diabetes and ischemic heart disease. Currently less than 3% of adult Albertans consume levels of fibre at or above the adequate intake level and could benefit from increased intake of fibre from such nutritious foods as whole grains and legumes.

The 2007 Global report also states that adults should be conscious of their consumption of red meat and consume a maximum of one serving (2.5 oz. /75 g) per day. Convincing evidence supports a positive relationship between red meat consumption and colorectal cancer, which is the third most common cancer in Alberta (Alberta Cancer Registry, 2008).

Processed meats also tend to contain high levels of sodium which have been linked to stomach cancer and other cardiovascular and diabetes risks. Adults should limit their daily intake of sodium to 2300 mg/day as salt and salty foods are associated with probable increased risk of stomach cancer and other chronic diseases including high blood pressure and stroke (Food & Board, 2004). Significant proportions of Albertans consume levels of sodium greater than the above recommended upper limit with males consuming higher amounts than females.

#### **4. Healthy body weight**

Nutrition and physical activity as modifiable risk factors are intricately related to the maintenance of a healthy body weight. As such, a healthy body weight initiative must include both a nutrition and physical activity component with the goal of maintaining a recommended body weight. The World Health Organization defines overweight and obesity as abnormal or excessive fat accumulation that presents a risk to an individual's health status (World Health Organization, 2003). A healthy body weight can be maintained by achieving energy balance which occurs when calories an individual consumes from food are equal to those he or she expends through daily activity and metabolism. In contrast, positive energy imbalance occurs when the calories an individual consumes are in excess of those he or she expends. If maintained over time, positive energy imbalance leads to weight gain. Maintaining a healthy body weight throughout life may be one of the most important ways to protect against cancer (Raine, 2005).

The Body Mass Index (BMI) and a Waist Circumference (WC) are two measures to indicate health risk. A healthy body weight is such that the BMI falls within the normal range of 18.5-24.9 kg/m<sup>2</sup>, preferably towards the lower end of the range. The BMI is an indicator of health risk with being

underweight or overweight. The WC measurement is an indicator associated with abdominal obesity and a healthy range for males is less than 102 cm (40 in) and less than 88 cm (35 in) for females.

It is recommended for those that have a BMI or WC above the normal range to reduce their weight as an increased BMI above the normal range is associated with increased risk of chronic disease. Although the achievement of a BMI within the normal range may seem unrealistic for some obese and or overweight individuals, it is important to realize that even a relatively small reduction in body weight ( 5 – 10%) can substantially reduce risk of specific cancers as well as type 2 diabetes and cardiovascular disease. These reductions can be accomplished through a combination of increased physical activity and or decreased caloric intake.

There is very convincing evidence to demonstrate that being overweight or obese increases the risk of pancreatic, colorectal, breast(post-menopausal) endometrial and kidney cancer. These cancers account for a significant proportion disease incidence and mortality in Alberta, making healthy weights an important focus of individual and population health interventions of which the workplace is one of the targeted populations.

---

## **Chapter 3: Current state of evidence for Alberta's top six industries**

### **Introduction**

The Cancer Prevention Program of Alberta Health Services (AHS) commissioned Oraclepoll Research Ltd. to undertake a workplace wellness survey that was designed to determine relevant policies and practices targeting modifiable risk factors in Alberta workplaces of cancer. Specifically, AHS was interested in learning more about the composition of Alberta's workforce, particularly in respect to current practices of employers in the implementation of workplace wellness initiatives targeting modifiable risk factors of cancer within Alberta's top six industries. From the analysis of Alberta labour force demographics the six industries identified were: retail trade; construction; health care and social assistance; mining and oil and gas extraction; professional, scientific and technical services; and manufacturing. Only companies with 300 or more employees were included in the sample frame.

The modifiable risk factors of cancer that were addressed through this survey are as follows:

1. Tobacco use/smoking behaviours;
2. Nutrition;
3. Physical activity;
4. Healthy body weight.

### **Labour force demographics**

In the 2006 Census, 1,942,825 of Albertans, aged 15 and older, were in the labour force<sup>2</sup> and 1,859,960 were employed. The employment rate was 71% whereas the unemployment rate was 4.3%<sup>3</sup>. The median age of Alberta's labour force in 2006 was 39.9 years and 14.8% of the total workforce was aged 55 and over. Additionally, most Albertans worked from outside their home (77%), with few working from home (8.9%) or without a fixed workplace address (13.7%).

The term 'industry' is defined by Statistics Canada as "the general nature of a business" where an occupation is "the kind of work a person does, based on the type of job he or she holds and the description of his or her duties. In 2006, half of all Albertans worked in one of the following industries: retail trade (10.7%), health care and social assistance (9.2%), construction (8.7%), professional, scientific and technical services (7.6%), manufacturing (7.2%), and mining and oil

---

<sup>2</sup> The **labour force** refers to those persons who were either employed or unemployed during the week (Sunday to Saturday) prior to Census Day (May 16, 2006). Persons NOT in the labour force are those who, during the reference week, were unwilling or unable to offer or supply labour services under conditions existing in their labour markets (this includes persons who were full-time students currently attending school).

<sup>3</sup> The **employment rate** for a particular group (age, sex, marital status, geographic area, etc.) is the number of persons employed in the week (Sunday to Saturday) prior to Census Day (May 16, 2006), expressed as a percentage of the total population in that particular group. The **unemployment rate** for a particular group (age, sex, marital status, geographic area, etc.) is the unemployed in that group, expressed as a percentage of the labour force in that group, in the week (Sunday to Saturday) prior to Census Day (May 16, 2006).

and gas extraction (7.0%) (**Table 2**). These statistics are important from a workplace wellness programming view point. Given the size of these industries, if programs designed to improve the health behaviours of employees were implemented within them they likely would have a large reach and impact. A more detailed profile of Alberta population demographics is provided in Appendix B.

**Tables 2:** Industry employment for province of Alberta, 2006 Census

<b>Industry Classification<sup>4</sup></b>	<b>n</b>	<b>%</b>
<b>All industries<sup>5</sup></b>	<b>1,859,960</b>	<b>100</b>
Retail trade	198,135	10.7
Health care and social assistance	170,750	9.2
Construction	161,540	8.7
Professional, scientific and technical services	141,495	7.6
Manufacturing	134,160	7.2
Mining and oil and gas extraction	127,705	6.9
Accommodation and food services	120,080	6.4
Educational services	117,000	6.3
Transportation and warehousing	96,155	5.2
Other services (except public administration)	95,610	5.1
Public administration	87,430	4.7
Wholesale trade	83,405	4.5
Agriculture, forestry, fishing and hunting	74,430	4.0
Administrative and support, waste management and remediation services	67,640	3.6
Finance and insurance	58,345	3.1
Real estate and rental and leasing	36,890	2.0
Information and cultural industries	34,780	1.9
Arts, entertainment and recreation	34,305	1.8
Utilities	17,560	0.9
Management of companies and enterprises	2,550	0.1

### Survey Instrument Validation

The survey instrument utilized for our Situational Analysis of Workplace Wellness in Alberta was designed by the Cancer Prevention Program of Alberta Health Services. The questions were based on current literature of other questionnaires or assessment tools pertaining to workplace wellness and health promotion (see reference list below). Specifically, the survey instrument contained approximately 52 indicators that included open, closed and semi-closed questions.

<sup>4</sup> Based on the North American Industry Classification System 2002.

<sup>5</sup> This refers to the experienced labour force population which includes persons who were employed and persons who were unemployed who worked for pay or in self-employment since January 1, 2005

Certain indicators were then broken down into further topic areas to further provide insight on workplace wellness practices in Alberta's top 6 industries. When appropriate, Likert scales<sup>13</sup> were used to rate levels of agreement and dichotomous 14 questions were used to classify answers, most often into yes and no responses.

The objectives of this survey were as follows:

- Assess the practices and policies relating to modifiable risk factors for cancer and other chronic disease in Alberta workplaces
- Highlight both the current strengths and challenges of workplace wellness programming in the province of Alberta
- Highlight opportunities for improvement in order to help set priorities for future Alberta Health Services projects, especially those for the Workplace Wellness Program Team
- Allow for a performance comparison of workplace wellness related initiatives within and between industries.

Additionally, prior to the design of the survey instrument, the workplace wellness research team believed the content for the survey should be grounded in theory and incorporate questions concerning the following components of the Comprehensive Workplace Health Model:

- 1) Occupational health and safety
- 2) Voluntary health practices
- 3) Organizational culture

Once the initial draft of the survey instrument was completed, the survey was reviewed and discussed with two workplace wellness experts; Anna Farmer, PhD, and Kim Raine, PhD both from the University of Alberta, School of Public Health, Centre for Health Promotion Studies. These external reviewers gave valuable feedback on improving the validity and reliability of the questionnaire and recommended that it be pilot tested. Unfortunately, by this time the survey component of situational analysis was already behind schedule and it was decided to forgo pilot testing. Additionally, the original request for proposals that was awarded to the Oracle Poll did not contain a requirement that the questionnaire be piloted. However, at the completion of the survey, Oracle Poll did do an in depth analysis of survey responses obtained including reasons for potential survey participants for not responding.

### **Survey methods**

The database of potential employers to participate in the survey was compiled using several sources that included the Government of Alberta, ADSE Survey Sampler and Dun and Bradstreet.

The files were merged to eliminate duplicates in order to create a single file.

A mixed method approach was then used to collect data from the total sample population (n=171). This method allowed respondents the choice of four possible vehicles to complete the questionnaire: telephone, online, mail and fax. It should be noted that although efforts were made to have the most senior management individuals possible complete the survey, actual respondents varied and included human resources personal, administrative staff and health & safety professionals etc. A senior researcher from Oracle Poll first contacted each organization by telephone to determine the preferred survey method. If the researcher was unable to reach the respondent by telephone a mail survey was sent to each contact. If an email address was also provided, an internet link was sent to complete the online survey. All of these techniques were used in an attempt to ensure the maximum responses rate from the sample population.

Telephone surveys were conducted using computer-assisted techniques of telephone interviewing (CATI), and online surveys used the Voxco Web™ online survey engine. A total of 30% of all phone interviews were monitored for quality and completeness. For the online survey, respondents were provided a link to the survey website and were given a password. Mail respondents were provided with a pre-paid stamped envelope to return and a 1-800 toll free fax line was given to return surveys by fax.

All surveys were conducted between June 12 and July 21, 2009. Calls were made during business hours 9 a.m. to 6 p.m. and a maximum of 15 attempts were made to reach a respondent by telephone. Calls were made over the collection period at staggered times of the day. In a further attempt to obtain the maximum response rate, five reminder mail outs or emails (for the online method) were sent out to non respondents. A total of 73 respondents completed the survey. Of those, 60 currently or previously offered some mix of workplace wellness initiatives while 13 reported no such programs/policies were ever implemented.

#### **Resources utilized in the development of the Workplace Wellness Survey:**

- The European Network of Workplace Health Promotion. 1999. Healthy Employees in Healthy Organizations-Good Practice in workplace health promotion (WHP) in Europe: Questionnaire for self assessment. Available online <http://www.enwhp.org/fileadmin/downloads/questionnaire.pdf>
- Knowledge Exchange Network-Manitoba Division of CCS-Information Package for evidence-informed interventions: Effective workplace nutrition interventions
- Knowledge Exchange Network-Manitoba Division of CCS-Information Package for evidence-informed interventions: Effective workplace physical activity interventions

- Knowledge Exchange Network-Manitoba Division of CCS-Information Package for evidence-informed interventions: Effective workplace tobacco cessation interventions
- Organizational Health Audit-Tri Lift. 1998. A collaborative tool developed by Tri Fit Inc.. Available online <http://www.trifit.com/pdfs/CHWW%20Health%20Audit%20-final.pdf>
- Sithisarankul, P., Pungeng, T., Boonchoo, S. and Baikrai, U. 2003. Healthy workplace indicators in Thailand: Phase 2 (a pilot study). Vol. 86 Suppl 2:S271- 83.
- World Health Organization. 1999. Regional guidelines: For the development of healthy workplaces. Available online [http://www.wpro.who.int/internet/resources.ashx/HSE/occupational\\_health/data/maa/Healthy+Workplaces+Guidelines.pdf](http://www.wpro.who.int/internet/resources.ashx/HSE/occupational_health/data/maa/Healthy+Workplaces+Guidelines.pdf).
- Move Europe. 2007. Company health check: An instrument to promote health at the workplace. Available online at [http://www.enwhp.org/fileadmin/downloads/7th\\_Initiative\\_MoveEU/Review\\_and\\_Catalogue\\_CHC.pdf](http://www.enwhp.org/fileadmin/downloads/7th_Initiative_MoveEU/Review_and_Catalogue_CHC.pdf)

### **Province at a glance**

To optimize the workplace setting as an avenue for the delivery of cancer prevention initiatives, it is important to understand the multiple working environments across Alberta and the people who work within them. We have provided a description of Alberta's industries, including the makeup of the top six industries (defined by numbers employed), including specific information about employee demographics and establishment size in Appendix D.

### **Workplace wellness initiatives in Alberta's largest six industries**

In order to implement evidence-based best practices in Alberta, it is necessary to identify and understand what organizations across Alberta are or are not currently doing to help reduce the risk of cancer in their employees through the work setting. By identifying and examining current and past workplace wellness initiatives in Alberta's organizations and industries, the strengths and weaknesses of these workplace wellness initiatives, and the capacity to implement best practices in the work setting, we gain the information necessary to map, build, and strengthen provincial-wide workplace wellness initiatives that improve and maintain the health of Alberta's employees.

If workplace wellness initiatives can be implemented in the majority of organizations within the largest industries, they have the potential to modify the risk factors of a significant percentage of the Albertan population and ultimately reduce the incidence and mortality rates of cancer and the suffering it causes. Therefore, these top six most employed industries in Alberta were surveyed to learn how organizations promote healthy behaviours, like tobacco cessation, physical activity, healthy eating, and achieving and maintaining healthy body weights, through current and past

workplace wellness Unless otherwise indicated, all results presented in this section are from the report created by Alberta Health Services and Oraclepoll Research Limited (2009).

Survey participants were asked how their organizations promoted healthy behaviours through tobacco cessation, physical activity, healthy eating, and achieving and maintaining healthy body weights. Respondents whose organizations addressed any of the four modifiable risk factors of interest were asked a series of questions related each risk factor addressed. Topic areas included:

1. policy and guidelines,
2. incentives, (both financial and other)
3. personal and financial resources available
4. employee assessment,
5. evaluation of workplace wellness initiatives, and,
6. specific workplace wellness initiatives.

Of the baseline 171 organizations that met these two inclusion criteria, 60 organizations participated in the survey with a response rate of 30.1%. It should be noted that as over half (58.3%) of the respondents worked for either the professional, scientific and technical services industry or manufacturing industry, an over-representation in these industries was possible.

**Table 3:** Counts eligible organizations and those that completed a survey

Industry	Eligible Organizations		Organizations That Completed a Survey	
	Number	%	Number	%
Retail	21	12.3	5	8.3
Construction	21	12.3	6	10.0
Health Care and Social Assistance	13	7.6	5	8.3
Mining and Oil and Gas Extraction	25	14.6	9	15.0
Professional, Scientific and Technical Services	44	25.7	15	25.0
Manufacturing	47	27.5	20	33.3
<b>Total</b>	<b>171</b>	<b>100.0</b>	<b>60</b>	<b>100.0</b>

### Findings including study limitations

Due to the limited selection criteria and sample size (n=60), there was an over-representation of manufacturing employers (33.3%) relative to the sample population and slight under representations of retail employers (8.3%). Due to limitations like considerable margins of error

for the results, these results were not analyzed within organizations, but instead at the industry-level. Therefore, further caution is advised when applying the results of the survey to the general industry setting. Findings by topic areas of interest to the workplace wellness program team are also presented later in this chapter.

When first asked to describe the workplace wellness initiatives currently offered in their organization, unprompted responses indicated that the five most frequently mentioned initiatives were:

1. Exercise Program/On-site Facilities,
2. Employee Assistance Programs,
3. Disease Screening/Risk Appraisal,
4. Health Seminars/Wellness Fairs/Meetings, and,
5. Reimbursement/Health Allowance/Spending Account for health promotion related activities (i.e. gym memberships) or sport/wellness equipment

Although smoking cessation, nutrition and healthy body weight initiatives were not identified specifically in the top five responses, they may be included in a number of areas, like health seminars.

Concerning the four modifiable risk factors of interest, physical activity initiatives were the most prevalent type of workplace wellness initiative with 90% of responding workplace wellness personnel (54 respondents of the potential n=60) indicating that they had such workplace wellness initiatives. The fewest number of respondents (68.3%) indicated they had healthy body weight initiatives, with 41 of the 60 possible respondents answering yes to this survey question. This is likely due to the fact that in order to be considered a healthy body weight initiative, both a physical activity and healthy eating component must be present.

**Table 4:** Workplace wellness initiatives by modifiable cancer risk factor

Industry	# of Potential Respondents	Modifiable Risk Factors of Cancer							
		Tobacco Use		Physical Activity		Nutrition		Health Body Weight	
		N	%	N	%	N	%	N	%
Retail	5	5	100.0	5	100.0	5	100.0	5	100.0
Construction	6	3	50.0	5	83.3	3	50.0	1	16.7
Health Care and Social Assistance	5	4	80.0	4	80.0	4	80.0	4	80.0
Mining and Oil and Gas Extraction	9	8	88.9	8	88.9	7	77.8	8	88.9

Professional, Scientific and Technical Services	15	9	60.0	14	93.3	12	80.0	10	66.7
Manufacturing	20	13	65.0	18	90.0	17	85.0	13	65.0
<b>Total</b>	<b>60</b>	<b>42</b>	<b>70.0</b>	<b>54</b>	<b>90.0</b>	<b>48</b>	<b>80.0</b>	<b>41</b>	<b>68.3</b>

Most organizations, when asked if they had ever used an external service provider to implement initiatives responded yes, and then were asked details of what the external service provider coordinated. Fifty-five percent of those surveyed had used a service provider currently or in the past. These providers mostly coordinated disease screening/risk appraisals (12.5%), health seminars/wellness fairs/meetings (10.4%), all wellness programs (10.4%), exercise/fitness programs (10.4%), and smoking cessation programs (10.4%).

Organizational leaders influence workplace culture through means like company memos, provision of resources, and their behaviour (Abbot, Manning, & Tucker, 2007). To assess the level of management support for workplace wellness initiatives, respondents rated how strongly they agreed or disagreed to statements reflective of management support.

The surveyed participants were asked if they agreed or disagreed with the following statements:

- My organization encourages its employees to adopt and maintain healthy lifestyles (78%),
- The executive team in my organization supports workplace wellness initiatives (75%), and,
- The managers in my organization support workplace wellness initiatives (73%).

The majority of respondents, however, did not feel that the organization had formalized workplace wellness initiatives as only 48% of participants surveyed agreed when asked if their organization's mission statement and/or philosophy included its position on workplace wellness. Likewise, 35% responded felt their organization had a written policy regarding workplace wellness, and, 32% had a committee within the organization that plans, monitors, and evaluates workplace wellness initiatives.

When respondents were asked how their organization supports its employees to adopt and maintain healthy lifestyles, the most frequent response was onsite physical activity programs and facilities (36.2%). Unfortunately, 29.8% indicated they did not know if or how their organization supported its employees to adopt and maintain healthy lifestyles.

Of respondents who indicated that all employees are encouraged to participate in workplace wellness initiatives (73%), emails/newsletters were the most frequently cited method (27.4%). Another method often used to encourage participation is to offer workplace wellness initiatives during work hours. When asked directly about when the majority of workplace wellness initiatives are offered, respondents indicated that employers were less likely to offer the initiatives during work hours (43%), but 33% did indicate that sometimes it depended on the initiative.

Participating workplace wellness respondents were asked to rate their perception of the importance of tobacco use, physical activity, nutrition and healthy body weight risk factors. Following their answer to this question, they were asked to rate their company's perception of the importance of the same modifiable risk factors for cancer according to their organization's workplace wellness initiatives. The objective of this question was to see if there was a discrepancy

between what the organization is currently doing and what the respondent felt the organization needs. The comparisons between the results are presented in Table 5.

**Table 5:** Importance of initiatives based on modifiable risk factors for workplace wellness from an organization's viewpoint (Org.) and from the perspective of the employer representative (Self) (% favourable responses<sup>a</sup>)

Industry	Modifiable Cancer Risk Factors							
	Tobacco Use		Physical Activity		Nutrition		Health Body Weight	
	Org.	Self	Org.	Self	Org.	Self	Org.	Self
Retail	60.0	80.0	100.0	100.0	100.0	100.0	80.0	80.0
Construction	50.0	66.7	83.3	83.3	50.0	66.7	33.3	33.3
Health Care and Social Assistance	50.0	60.0	100.0	80.0	100.0	80.0	80.0	80.0
Mining and Oil and Gas Extraction	66.7	77.8	88.9	88.9	66.7	88.9	77.8	88.9
Professional, Scientific and Technical Services	53.0	67.0	87.0	73.0	60.0	67.0	60.0	60.0
Manufacturing	75.0	100.0	65.0	95.0	65.0	95.0	65.0	90.0
<b>Total</b>	<b>63.3</b>	<b>80.0</b>	<b>81.7</b>	<b>86.7</b>	<b>68.3</b>	<b>83.3</b>	<b>65.0</b>	<b>75.0</b>

<sup>a</sup> A response of very important or important constitutes a favourable response.

In summary, physical activity was the most frequently cited risk factor for workplace wellness programming for both organizations and according to our respondents viewpoint. These results are indicative that the importance of these behaviours is often considered more important to the participating workplace wellness personnel than to their organization. Over 88% of respondents indicated that their organization offered a health care spending account or an extended health benefit plan. These respondents were then provided with a list of possible services and asked to indicate which services were covered within their plan (Table 15). Services related to the prevention of modifiable risk factors of cancer were least likely to be covered by the health care spending account or an extended health benefit plan. These results would suggest that current health benefits offered by Alberta organizations are reactive in nature (i.e. drug and physiotherapy

services) to existing health issues, and not currently focused on preventing occupational injuries and diseases.

**Table 6:** Types of health services ranked by frequency of responses

<b>Does the health care spending account or extended health benefit plan offered to employees cover services and fees for any of the following areas?</b>	<b>% Responses<sup>a</sup></b>
Basic Dental Coverage	98.1
Prescription Drug Expenses	98.1
Physiotherapy Services	96.2
Chiropractic Services	92.4
Diagnostic Service Expenses	81.1
Quitting Smoking and/or Tobacco Use Through Medical Coverage	69.8
Naturopathic Services	60.3
Dietitian /Nutrition Services	58.5
Fitness Subsidy	41.5
Quitting Smoking and/or Tobacco Use Through Counselling	39.6
Enrolment to Weight Loss/Management Organizations	24.5
Healthy Meal/Snack Allowances	11.3

<sup>a</sup> Each respondent can provide multiple examples thus totals will not add to 100%

**Trends in workplace wellness initiatives related to risk factors for cancer prevention by topic area**
**1. Policies and guidelines**
**Table 7:** Percentage of employers with policies regarding selected modifiable risk factors currently in place

Industry	Modifiable Cancer Risk Factor			
	Tobacco Use	Physical Activity	Nutrition	Healthy Body Weight
	There is a workplace policy on smoke-free indoor workplaces	There is a workplace policy to promote physical activity in the organization	There is a workplace policy to support nutrition and healthy eating in the organization	There is a workplace policy to promote employees achieving and maintaining a healthy body weight in the organization
Retail	100.0	60.0	20.0	20.0
Construction	100.0	60.0	0.0	0.0
Health Care and Social Assistance	100.0	50.0	75.0	0.0
Mining and Oil and Gas Extraction	75.0	25.0	14.3	0.0
Professional, Scientific and Technical Services	100.0	35.7	33.3	10.0
Manufacturing	92.3	33.3	11.8	23.1
<b>Total</b>	<b>92.9</b>	<b>38.9</b>	<b>22.9</b>	<b>12.2</b>

According to respondents, a smoke-free indoor workspace policy was the most established risk factor-related policy in the top six industries (92.9%). Formal policies with respect to the promotion of physical activity, nutrition and healthy body weight were much less prevalent at 39%, 23% and 12% respectively. Representatives from the construction industry reported no policies at all related to nutrition and healthy body weights.

Another frequently cited “workplace” tobacco policy was the Tobacco Reduction Act which prohibits smoking within five metres of a doorway, window that opens, or an air intake in a workplace. As this policy is legislated in Alberta caution should be made when considering it against voluntary policies. Fewer respondents indicated having additional policies that further

prohibited tobacco use, for example policies prohibiting smoking in their work vehicles (69%) or outdoor spaces (36%). No respondents in the construction industry reported a policy on smoke-free outdoor spaces, however, all construction respondents reported a policy restricting smoking within company vehicles.

The most popular policy related to nutrition was that of providing healthy food choices in retail outlets on work properties (see **Table 8**). It was not completely clear in all cases if this was the organizations' policies or the policies of a 3<sup>rd</sup> party vendor (i.e. external cafeteria services). Additionally, although the most prevalent, the construction and health care industries did not report having such a workplace policy.

**Table 8:** Percentage of employers with nutrition policies

<b>Industry</b>	<b>There is a workplace policy to promote nutrition and healthy eating in the organization</b>	<b>There is a workplace policy or guideline to provide healthy food choices at catered meetings and events in the organization</b>	<b>There is a workplace policy or guideline to provide healthy food choices in the retail food service outlets, such as the cafeteria</b>
Retail	20.0	40.0	80.0
Construction	0.0	66.7	0.0
Health Care and Social Assistance	75.0	25.0	0.0
Mining and Oil and Gas Extraction	14.3	14.3	14.3
Professional, Scientific and Technical Services	33.3	33.3	33.3
Manufacturing	11.8	17.6	35.3
<b>Total</b>	<b>22.9</b>	<b>25.0</b>	<b>31.3</b>

## 2. Incentives

a) **Financial incentives:** Respondents were asked about the use of financial incentives to encourage healthy behaviours. Results indicated there is a need for employers, insurers and benefit providers to further recognize the importance of using incentives in workplace health promotion. Less than half of the organizations surveyed provided financial incentives, with incentives to improve physical fitness being the most common type of incentives cited by respondents (40.7%).

b) **Non-financial incentives:** Our analysis found these incentives were also not used frequently by organizations surveyed (see **Table 9**).

- Employers offer time off from work to attend tobacco use counselling classes at a rate of 12%.
- Almost 63% of employers from the mining, oil and gas extraction industry provide subsidized on-site exercise facilities. Overall, 35% of employers have such on-site facilities.
- Employers from the health care and social assistance industry lead in offering non-financial incentives such as promoting employees to walk or cycle to/from work and organizing activities before, during and after work time.
- Access to nutritious meals on-site is available at 48% of the work sites. Employers from the retail industry reported providing employees with access to nutritious snacks or meals at the worksite the most.
- Financial support for employees to consult with a dietitian or nutritionist is available to one-third of employers that have healthy eating programs.

The efforts of the construction industry were again recognized as having potential for improvement as they were behind the other industries in providing workplace initiatives related to the modifiable risk factors for cancer.

**Table 9:** Percentage of employers with other incentives targeting modifiable cancer risk factors

Industry	Modifiable Cancer Risk Factor						
	Tobacco Use	Physical Activity				Nutrition	
	Employees who attempt to quit smoking receive support in the form of time off work to attend classes or counselling sessions	Employees have access to on-site exercise facilities that are financially subsidized and maintained by your organization	The organization promotes employees to walk or cycle to and/or from work	Exercise activities are organized for employees before or after work time	Exercise activities are organized for employees during work hours	Employees have access to nutritious, healthy meal and snack options for purchase at the worksite	Financial support is provided by the organization for employees to consult with qualified nutrition professionals
Retail	20.0	0.0	0.0	0.0	20.0	80.0	0.0
Construction	0.0	20.0	40.0	20.0	40.0	0.0	0.0
Health Care and Social Assistance	0.0	25.0	50.0	75.0	75.0	25.0	0.0

Mining and Oil and Gas Extraction	0.0	62.5	25.0	37.5	12.5	57.1	57.1
Professional, Scientific and Technical Services	11.1	42.9	28.6	42.9	35.7	41.7	33.3
Manufacturing	23.1	33.3	44.4	38.9	38.9	52.9	41.2
<b>Total</b>	<b>11.9</b>	<b>35.2</b>	<b>33.3</b>	<b>37.0</b>	<b>35.2</b>	<b>47.9</b>	<b>31.3</b>

### 3. Resources

The majority of respondents in each industry surveyed indicated that their organizations distribute information regarding the modifiable risk factors to their employees. Information on tobacco use and nutrition are most prevalent with three-quarters of respondents (76% and 73% respectively) indicating information is distributed on these topics

Respondents were asked if they felt their organization had the financial resources available to develop workplace initiatives for employees related to the four modifiable risk factors of interest for cancer (see **Table 10**). Interestingly, no more than one third of participants reported having the financial resources available to develop these types of initiatives.

**Table 10:** Percentage of employers with financial resources

Industry	Modifiable Cancer Risk Factor			
	Tobacco Use	Physical Activity	Nutrition	Healthy Body Weight
	The organization has the financial resources available to implement tobacco use initiatives for employees.	The organization has the financial resources available to develop physical activity and exercise initiatives for employees.	The organization has the financial resources available to develop nutrition and healthy eating initiatives for employees.	The organization has the financial resources available to develop healthy body weights initiatives for employees.
Retail	0.0	0.0	40.0	20.0
Construction	33.3	40.0	0.0	0.0
Health Care and Social Assistance	0.0	25.0	25.0	0.0
Mining and Oil and Gas Extraction	12.5	25.0	28.6	25.0
Professional, Scientific and Technical Services	33.3	28.6	16.7	20.0
Manufacturing	61.5	33.3	29.4	38.5
<b>Total</b>	<b>31.0</b>	<b>27.6</b>	<b>25.0</b>	<b>24.4</b>

#### 4. Employee assessment

To understand what changes workplace wellness initiatives make, it is important to collect baseline health information about employees' health and wellness. Tracking these assessments can influence decision making for workplace wellness initiatives and provide accountability for resources (Russell, 2009). Those surveyed were asked if their organization assessed tobacco use, physical activity, nutrition and healthy body weight indicators in their employees. A minority of organizations responded that they had, in the past year, conducted an employee assessment related to the risk factor of interest (see **Table 11**). The modifiable cancer risk factor that had been assessed most frequently was physical activity with 27.8 % of respondents indicating in the past year an assessment of the physical fitness of their employees had been conducted.

The professional, scientific and technical services and manufacturing industries were the only two industries where at least one organization within the industry reported assessing all four risk factors for cancer. The most frequented behaviours to be assessed were physical fitness and body weights, 28% and 27%, respectively.

**Table 11:** Percentage of employers that assess employee health

Industry	Modifiable Cancer Risk Factor			
	Tobacco Use	Physical Activity	Nutrition	Health Body Weight
	In the past year, an assessment of the tobacco use of employees has been conducted.	In the past year, an assessment of the physical fitness of employees has been conducted.	In the past year, an assessment of the diets and nutrition behaviours of employees has been conducted.	In the past year, an assessment on the body weights of employees has been conducted.
Retail	0.0	0.0	0.0	0.0
Construction	0.0	20.0	0.0	0.0
Health Care and Social Assistance	0.0	25.0	25.0	0.0
Mining and Oil and Gas Extraction	25.0	25.0	0.0	25.0
Professional, Scientific and Technical Services	11.1	35.7	8.3	40.0
Manufacturing	38.5	33.3	17.6	38.6
<b>Total</b>	<b>19.0</b>	<b>27.8</b>	<b>10.4</b>	<b>26.8</b>

## 5. Evaluation of workplace wellness initiatives

Although measuring participation rates in workplace wellness initiatives is the most common evaluation practice, other evaluation measures cited included employee satisfaction, outcome results, process evaluation, and initiative cost-effectiveness (Russell, 2009).

Similar to having assessed the four risk factors in organizations, few employers have evaluated their specific wellness initiatives at least once per year. Once again, physical activity was the most

evaluated workplace wellness initiative by all industries (26.2%) and nutrition remained the least evaluated and assessed risk factor overall (10.4% and 20.8% respectively).

Only a few organizations currently track health improvements from workplace wellness initiatives (23.3%) and of these organizations 64% track annually and 43% do so through general reports and record keeping (**Table 12**). None of the participants from the retail and construction industries indicated that their employer tracks the health improvements from workplace wellness initiatives.

**Table 12:** Percentage of employers that evaluate initiatives

Industry	Modifiable Cancer Risk Factor			
	Tobacco Use	Physical Activity	Nutrition	Health Body Weight
	The initiatives that address tobacco use and smoking of employees are evaluated at least once per year.	The initiatives that promote physical activity, exercise, and active living to employees are evaluated at least once per year.	The initiatives that promote nutrition and healthy eating to employees are evaluated at least once per year.	The initiatives that address healthy body weights are evaluated at least once per year.
Retail	0.0	0.0	0.0	0.0
Construction	20.0	20.0	0.0	0.0
Health Care and Social Assistance	25.0	25.0	25.0	0.0
Mining and Oil and Gas Extraction	12.5	25.0	28.6	37.5
Professional, Scientific and Technical Services	33.3	40.0	25.0	40.0
Manufacturing	53.6	33.3	23.5	23.1
<b>Total</b>	<b>26.2</b>	<b>31.5</b>	<b>20.8</b>	<b>24.4</b>

## 6. Specific workplace wellness initiatives

If survey participants indicated having a workplace wellness initiative they were then asked specific questions related to that initiative. For example, if they had initiatives related to tobacco

use then they were asked tobacco use related questions, and so on for the other three risk factors for cancer. Specific workplace wellness initiatives were probed around best practices retrieved from literature and areas of specific interest to the Cancer Prevention Program. **Table 13** highlights the chosen workplace wellness initiatives related to the four risk factors of interest and how they are utilized in the top six industries of Alberta.

**Table 13:** Risk factor specific workplace wellness initiatives

<b>Workplace Wellness Initiative</b>	<b>%</b>
<b>Tobacco Use</b>	
Cigarettes are not available for purchase at the worksite	78.6
Self help materials (e.g.: Canadian Cancer Society's For Smokers Who Don't Want to Quit)	64.3
Telephone counselling with a counsellor	59.5
Individual counselling for skills training	52.4
Maintenance sessions where continued cessation is encouraged and self-control techniques are emphasized	21.4
Quit Smoking Buddy System where a partnership is established between the participant and a non/ex-smoker	7.1
Group counselling where fellow employees are the facilitators	4.8
Other tobacco use workplace wellness initiatives	25.1
<b>Physical Activity</b>	
Access to stairwells that employees can use for exercise	83.3
Access to showers and change rooms for the employees after they exercise	75.9
Bicycle storage racks at the worksite	75.9
Informational and motivational materials on being physically active	74.1
Print materials geared at lifestyle activity as opposed to structured exercises	59.3
Onsite exercise classes	35.2
Sessions on skill building and behaviour change around being physically active	29.6
Stretch breaks during meetings	29.6
Route information to outdoor jogging trails or walking trails near the worksite	24.1
Signage to encourage stair use over the elevator or escalator	24.1
Personal training	11.1
Physical fitness assessments	11.1
Walking meetings	11.1
Financial incentives to walk or bike to work	3.7
Other physical activity, exercise and active living workplace wellness initiatives	27.8
<b>Nutrition Workplace Wellness Initiative</b>	
Free drinking water available	93.8
Lunch rooms provided	93.8
Education (i.e.: Skill building sessions and demonstrations)	45.8
Vending machines provide healthy food choices	45.8

Employees receive a copy of the Canada's Food Guide	43.8
Retail food service outlets, like the cafeteria, offer prompts for healthy eating choices	41.7
Individualized counselling involving discussions and planning around healthy eating and / or dietary needs of the employee	39.6
Family involvement	10.4
Pricing incentives for healthy food choices	10.4
Free vegetables and fruit	8.3
Healthy cooking classes are organized for employees	8.3
Vending machines do not offer soft drinks, fast food or sweets	8.3
Other nutrition and healthy eating workplace wellness initiatives	10.4
<b>Healthy Body Weight Workplace Wellness Initiative</b>	
Individual counselling that incorporates weight loss / maintenance, nutrition and physical activity counselling	63.4
Lifestyle coach who helps with management and motivation	24.4
Group counselling that incorporates weight loss / maintenance, nutrition, and physical activity counselling	22.0
Weight loss and / or control programming	22.0
Food addiction and eating disorder assistance services, such as Overeater's Anonymous	19.5
Weight loss supplements covered under a health care expense account or extended health benefits	19.5
Commercial weight management programs implemented at the worksite and delivered by an external service provider such as Weight Watchers	17.1
Weight loss or bariatric surgery services	7.3
Other achieving and maintaining a healthy body weight workplace wellness initiatives	7.3

The most frequently identified initiatives with regards to tobacco use, physical activity, nutrition and healthy body weight were; free drinking water is available and lunch rooms are provided (93.8%), 83.3% of worksites have access to stairwells that employees can use for exercise, cigarettes not being available for purchase at 78.6% of worksites and 63.4% of worksites have individual counseling that incorporates weight loss and/or maintenance, nutrition, and physical activity counseling.

The least frequently mentioned initiatives identified with regards to the risk factors were; financial incentives to walk or bike to work (3.7%), tobacco group counseling where fellow employees are the facilitators (4.8%), free vegetables and fruit, healthy cooking classes for employees, vending machines that don't offer soft drinks, fast food or sweets (8.3%) and weight loss or bariatric surgery services (7.3%).

### Communication vehicles

From a list of common communication vehicles, survey participants were asked to indicate which ones they used most frequently to provide employees with information on tobacco use, physical activity, nutrition and healthy body weight. Results are displayed in **Table 14**. No statistically significant difference between the modifiable risk factor and the type of communication vehicle could be found. No information regarding whether the communication vehicle (i.e. newsletters) was distributed internally or externally was collected during our survey. However, email and online bulletins was the most prevalent communication strategy (84.8%) followed closely by work bulletin boards 83.9%).

**Table 14:** Communication vehicles

Delivery Vehicle	Use	Do Not Use	Refused / Don't Know
Email/Online Bulletin	84.8	13.1	2.3
Bulletin Boards	83.9	15.3	0.8
Word of Mouth	83.0	12.8	4.2
Newsletter	71.7	24.8	3.5
Group Information Sessions	71.3	25.4	3.3
Wellness Resource Library	70.5	26.2	3.3
Guest Speaker From an External Organization	68.2	28.2	2.6
One-on-one Information Sessions	65.2	28.7	6.1
On-site Nurse	65.5	32.7	1.8
Wellness Station	61.9	35.2	2.9
Employee Letter	57.1	37.8	5.1
Internal Homepage	52.9	43.7	3.4
Health Fair	50.1	44.4	5.5
Magazines	48.2	45.9	5.9
Telephone	32.0	65.4	2.6
Pay slips	26.7	70.7	2.6

## Organizational support

The employee assistance provider and the internet were the most frequently cited sources where participants seek workplace (and individual) wellness guidance and advice (82% and 77% respectively). Alberta Health Services was indicated 50% of the time.

**Table 15:** Services/resources that would benefit an organization ranked by frequency of responses

Services/Resources	% Responses <sup>a</sup>
Educational Materials	73.3
Motivational Materials	70.0
Health Screening Materials	61.6
Literature on a Specific Topic	61.6
Funding	55.0
Tracking Template to Monitor and Evaluate your Program	55.0
Programming Guidance	51.6
Skills Training	45.0
Group Counselling	40.0
Individual Counselling	35.0
Cafeteria/Meal Modification	23.3
Telephone Counselling	23.3

<sup>a</sup> Each respondent can provide multiple examples

## Conclusions

In addition to the findings previously discussed, it was very important for the Cancer Prevention Program to understand how they could best support Alberta's workplaces in future and help improve and maintain the health of their employees. Common themes that emerged included providing assistance in the delivery, evaluation, and promotion of effective workplace wellness initiatives related to specific health behaviours (e.g. tobacco use, physical activity, nutrition and healthy body weights). Respondents indicated a wide variety of services/resources cited that would benefit their organization. These results would imply there is support to increasing the variety of services and resources used by our participating organizations to increase their workers' knowledge and support of workplace wellness. The top choices were educational (73.3%), motivational (70.0 %), health screening materials (61.6%) and literature on a specific topic (61.6%). See **Table 15** for the rest of the results.

## **Chapter 4: Economic assessment of workplace wellness initiatives**

### **Introduction**

As the incidence, mortality, and suffering due to cancer continues to rise, a heavy economic burden is placed on the health care system. In the summer of 2009, HDR|Decision Economics (HDR), in conjunction with Alberta Health Services (AHS), assessed the economic burden of cancer in Alberta. Specifically, an analysis of the direct and indirect economic costs (and benefits) of workplace wellness initiatives related to modifiable risk factors was conducted. This study attempted to assess the potential financial impact of workplace wellness initiatives, including employer program or policy activities that are related to the reduction of modifiable risk factors for cancer and ultimately the reduction of cancer incidence.

The return on investment (ROI) for workplace wellness initiatives is a measure of the net “benefits” of the initiative (e.g. lower staff sickness) in relation to the cost(s) of implementing the initiative in the work place. It should be noted that although this chapter defined the “costs” for employers (usually on a per-employee basis) to implement workplace wellness programming, we will focus on developing an estimate for a return on investment from a societal perspective. As such, the costing data would be specific to the employer, the benefits would include direct and indirect savings for not only the employer in question but for also for the health system, the individual and their friends and family from reduced morbidity, disability etc. A specific example of this would be a reduction in worker illness and injury rates would result in savings for the employer (from reduced Worker’s Compensation Board claims) and also reduced costs for Alberta Health Services.

Additionally, when this report was commissioned, it was to review the impact of workplace wellness programming focused solely on cancer. Since this time, the scope of workplace wellness programming has been expanded to include other chronic diseases with overlapping modifiable risk factors. It thus can be argued that the potential economic benefits from implementing effective<sup>6</sup>, comprehensive workplace wellness programming for cancer and other chronic diseases would be much greater. For our review, the benefits of successful workplace wellness initiatives can be defined as reduced cancer incidence including reduced economic costs as the result of the reduction of cancer incidence, prevalence, disability etc (HDR Decision Economics, 2009).

In order to assess the economic impact of workplace wellness initiatives on cancer in Alberta information was obtained on the following:

---

<sup>6</sup> Unfortunately, there is no universally accepted definition for “effectiveness” regarding workplace wellness programming. Due to this limitation, HDR developed a methodological framework linking workplace wellness initiatives and successful reduction of risk factors on the basis of an “incremental” measure of program effectiveness. A 1 per one-percent program effectiveness was the most commonly used measure. For example, this would imply that 1 out of 100 participants that smoke would quit smoking as a result of the workplace wellness program.

1. An assessment of the economic costs of cancer;
2. An assessment of risk factors and their impact on cancer outcomes; and,
3. An assessment of workplace wellness initiatives and their impact on risk factors (HDR Decision Economics, 2009).

## **The economic burden of cancer in Alberta in 2000**

### **Methods/Background**

Understanding the economic burden of disease, including the indirect costs, is critical for the most effective prioritization of initiatives and allocation of resources. Thus, it is also important for programmers and decision makers to understand the similarities and differences between the variety of costing approaches that are frequently used by health economists. To assess the burden of cancer and other chronic diseases, two approaches are generally used:

1. **An incidence-based approach** can be used to estimate the life costs of illness, starting from the period of an illness' onset to its conclusion within a specific period of time (usually one year). Incidence costs include the discounted, lifetime medical, morbidity, and mortality costs for the incident cohort.
2. **A prevalence-based approach** can be used to estimate the annual costs of illness, regardless of the date of onset. Medical and morbidity costs for all prevalent cases are included, while discounted mortality costs are only included for those patients who die from the disease during the year of estimation.

When deciding between the two approaches, it should be noted that prevalence-based studies are far more common because they require less data and fewer assumptions than incidence-based studies. Furthermore, to assess the economic costs of a disease entails of an examination of its direct and indirect costs, which are defined as follows:

- **Direct costs** are the value of goods and services for which payment was made and resources used in the treatment, care and rehabilitation related to illness or injury. These costs are directly imposed on the healthcare system and may include those associated with hospitals, physicians, drug costs, and system (capital, public health, health research, etc.). They may also include other direct costs borne by patients or other payers (such as costs for transportation to health providers, special diets and clothing) however the inclusion of such items is dependent on the study.
- **Indirect costs** are the value lost due because of illness, injury-related work disability, or premature death. These costs include the value lost due to premature death (mortality costs) and disability (morbidity costs). They may also include the value of time lost by the patient and family members or friends caring for the patient however the inclusion of such (HDR Decision Economics, 2009).

Comparing the two cost categories, direct costs are generally more straightforward to determine because they are inherently tied to actual dollars spent within the healthcare system. In contrast, the determination of indirect costs is more of an estimation that is based on the projected and/or perceived economic value associated with a specific illness.

Two approaches for estimating indirect costs were utilized in this study:

1. **Human Capital Method:** This method measures the lost production, in terms of lost earnings of a patient or caregiver. This approach applies current average earnings by age and sex to lost market time and imputes the market value of time withdrawn. In order to determine the cost related to permanent disability or mortality, the earnings lost at each age is multiplied by the probability of living to that age.
2. **Contingent Valuation (Willingness-To-Pay Method):** This method measures the amount an individual would pay to reduce the probability of illness or mortality. For example, the willingness to pay can be determined by conducting a survey asking people (patients, families, experts) what they would be willing to pay to avoid a certain undesirable state.

## Review of literature

Reviews of published literature including reports (grey literature) on cancer prevention strategies and the financial outcomes as implemented through the workplace setting were conducted. This review focused mainly on reports within Canada and the U.S which provide information that could be used to guide the development and/or enumeration of the methodological framework linking workplace wellness and risk factors. Literature on financial outcomes was considered extremely important because it may provide information on the costs of wellness initiatives and/or provide insight on the return on investment (ROI) in terms of cancer prevention for Alberta Health Services.

In order to ensure consistency and comparability in our literature review, we defined exposure to the following risk factors as follows:

- **Smoking:** Reduction in the number of current smokers in the workplace;
- **Alcohol:** Reduction in alcohol consumption (number shifting from  $\geq 4$  drinks/day to 0 drinks/day);
- **Low fruit and vegetable intake:** Increase in daily fruit and vegetable consumption by persons in the workplace (number shifting from  $\leq 2.5$  servings/day to  $\geq 5$  servings/day);
- **Overweight and obesity:** Reduction in the number of overweight and obese persons in the workplace (as measured by BMI).
- **Physical inactivity:** Increase in physical activity by persons in the workplace (number shifting from inactive to sufficiently active).

## Findings

The economic burden of cancer in Alberta is substantial. In 2000, the total cost of all cancers diagnosed in Alberta was over \$11.8 billion (HDR Decision Economics, 2009).<sup>7</sup> The top five cost contributors were lung cancer (\$2.4 billion), breast cancer (\$1.2 billion), colon and rectum cancers (\$1.1 billion), prostate cancer (\$766 million) and lymphomas and multiple myeloma (\$678 million) (**Table 25**). It is estimated that 98% of the total cancer costs in Alberta are, in fact, indirect costs (\$10.4 billion) with mortality cost being the most significant element of indirect costs (81%, \$8.7 billion) (HDR Decision Economics, 2009).

**Table 25:** Total costs of cancer in Alberta for the year 2000 (in millions of \$)

Cancer-Site	Direct Costs	Indirect Costs <sup>a</sup>	Total Cost <sup>a</sup>
<b>Malignant neoplasms</b>	<b>225.5</b>	<b>11,592.1</b>	<b>11,817.5</b>
1. Other malignant neoplasms	98.6	2,359.0	2,457.6
2. Trachea, bronchus and lung cancers	18.4	2,374.4	2,392.8
3. Breast cancer	8.2	1,206.3	1,214.5
4. Colon and rectum cancers	23.1	1,087.9	1,111.0
5. Prostate cancer	9.1	757.2	766.4
6. Lymphomas and multiple myeloma	18.7	658.9	677.6
7. Leukaemia	11.6	463.9	475.6
8. Pancreas cancer	5.1	437.8	442.9
9. Melanoma and other skin cancers	5.3	375.9	381.2
10. Stomach cancer	5.0	357.3	362.2
11. Ovary cancer	3.2	270.2	273.4
12. Oesophagus cancer	2.5	255.3	257.8
13. Bladder cancer	5.8	249.5	255.3
14. Liver cancer	2.3	251.2	253.6
15. Corpus uteri cancer	2.2	192.8	194.9
16. Mouth and oropharynx cancers	4.2	153.4	157.6
17. Cervix uteri cancer	2.2	141.0	143.2

Notes: <sup>a</sup> mean estimate

Totals may not add due to rounding

<sup>7</sup> The Contingent Valuation Method was used to quantify the indirect costs for this total cost. This method measures the amount an individual would pay to reduce the probability of illness or mortality.

Future cost projections for Alberta estimate that the total cost of cancer is on the rise and projected to increase to \$14.2 billion in 2008, an increase of 20% from 2000, further increasing of 12% to \$25.6 billion by 2015. Additionally, the total cost by 2030 is projected to increase to \$18.3 billion an increase of 52% from 2000 (HDR Decision Economics, 2009).

### **Impact of reducing modifiable risk factors**

A health risk factor is disease precursor associated with a higher than average morbidity or mortality including certain individual behaviours such as tobacco use. If modifiable risk factors for cancer are reduced then we would expect to see a reduction in both the incidence and mortality of cancer. Additionally, improvements in general health and prevention of other chronic disease would be expected. For instance, tobacco's ideal theoretical exposure level is no tobacco use. The proportion of cancer cases that can be linked to a risk factor is quantified by the population attributable fraction (PAF). An example of PAF is the number of bladder cancers associated with smoking that could be prevented if the exposure (smoking) was removed. Individual contributions of the modifiable risk factors of interest to mortality of site-specific cancers were noteworthy.

The following are some key population attributable fractions observations based on the individual PAF's reported:

- The individual PAFs for all cancers were highest for smoking (29%), followed by alcohol use (4%), low fruit and vegetable intake (3%), overweight and obesity (3%), and physical inactivity (2%).
- For smoking individually, the highest 3 individual PAFs were for lung cancer (86%), mouth and oropharynx cancers (71%) and oesophagus cancer (71%).
- Alcohol use was most strongly associated with oesophagus cancer (41%), mouth and oropharynx cancers (33%) and liver cancer (32%).
- Low fruit and vegetable intake was most strongly associated with both oesophagus cancer (12%), stomach cancer (12%), followed by lung cancers (8%).
- The three highest PAFs associated with overweight and obesity were for corpus uteri cancer (43%), colon and rectum cancers (14%), and breast cancer (13%).
- Physical inactivity showed the greatest association for colon and rectum cancers (14%) and breast cancer (9%) (HDR Decision Economics, 2009).

### **Limitations specific to a PAF approach**

The previous section documented the potential reduction in cancer costs that would arise if exposure to the risk factors were reduced to a theoretical minimum level of exposure using the PAF approach. More information on PAF, including the equation used for our analysis can be

found in the Appendix (X) at the end of this chapter. The findings provide a useful guideline for assessing and evaluating where the greatest benefits could be achieved from successful management of risk factors. However, there are two key limitations:

1. The proportion of the population at different exposure levels was not reported (unknown).
2. The Relative Risk (RR) at different exposure levels was not reported (unknown).

**Both elements, if reported, would support the development of cost-benefit framework to evaluate workplace wellness initiatives. In particular, what are the current “exposure” levels for risk factors in Alberta? What is the relative risk at each exposure level compared someone that is unexposed to the risk factor? These are all pertinent questions that cannot be answered based solely on the PAF estimates provided.**

### **Workplace Wellness and financial outcomes**

Most identified research studies focused on demonstrating the ROI from the company perspective. Although ROI was a measure that expresses net benefits in relation to the costs (investment), the majority of studies we identified did not report the costs (investment) required. In addition, no studies could be found that quantified the financial outcomes in terms of cancer and chronic disease prevention from a population health or societal viewpoint. While studies did not report the costs of workplace wellness initiatives some studies did offer insight into the potential ROI of comprehensive wellness programs.

- One study suggests that for a cost of \$100 to \$150 per employee per year, the employer should expect a comprehensive health assessment risk of employees, a targeted feed-back, follow-up intervention programs and a high participation rate. It was recommended that worksites integrate incentives programs into benefits premium structures to prevent added costs associated with incentives. Also, it was recommended that employers should dedicate 5 to 10 percent of a wellness budget to program evaluation (Hunnicut, 2009);
- When asked how much employers should budget in order to enact an effective, comprehensive workplace wellness program, Dee Edington, a respected University of Michigan expert on workplace wellness ROI estimates an average of \$100-\$400 per employee per year. He continued on say that “medical care is expensive, wellness care is free” and on average, employers that invest adequate amounts in their wellness programs save at least 3 times their investment in health-related costs (Be-fit-body, 2009).
- A Canadian government's corporate wellness programs reported a return of \$1.95-\$3.75 per employee per dollar spent (Hunnicut, 2009).
- A review by (Makrides, 2004) stated the economic return on investment (ROI) reported for various WHP programmes ranged from \$3.50 saved to \$5.96 saved for every dollar spent (Chapman, 2006; Makrides, 2004).

- *Canada Life Insurance* reported that they saved \$3.43 for every \$1 spent on its fitness (physical activity) programs (Burton, Walsh, & Brown, 2008).

### **General research limitations**

During our review, we found that current literature often insufficiently addresses the impact of workplace wellness initiatives on the modifiable risk factors of cancer and other chronic diseases (HDR Decision Economics, 2009). This is due in part with frequently cited limitations such as overlapping of some risk factors and a general lack of evaluation for workplace wellness initiatives, including long term follow-up to determine effectiveness. Unfortunately, organizations are more likely to focus on measuring changes to their costs of operations than changes in the exposures to risk factors (HDR Decision Economics, 2009).

Examples of research limitations that our review identified are as follows:

- The impacts of the interventions reported sometimes do not clearly correlate to the risk factor exposures evaluated or were not considered the best evaluation measures, according to the methodology linking risk factors to cancer outcomes,<sup>8</sup> for example, some studies report weight loss instead of BMI.
- The majority of national respondents are not utilizing incentives programs to encourage participation in wellness initiatives. The effectiveness of incentives was often not discussed.
- The evaluation methods of numerous studies are questionable or there was a lack of evaluation or performance indicators. The majority of companies do not evaluate and record outcomes of wellness efforts, including their ROI and lessons learned.
- The literature is primarily case-studies whereby findings are not representative of total wellness programs since program types and participants vary considerably across companies.
- Participation rates by risk factor were often not specified (e.g. how many smokers are participating? How many overweight and/or obese persons are participating?, etc).
- There are inconsistent findings across some studies.
- Intervention design was often not reported or sufficient detail provided. Very few randomized control trails (RCT) were identified.

### **Return on investment findings from a societal perspective and conclusions**

---

<sup>8</sup> See Section 3.5

## Findings specific to workplace wellness and cancer

From the methodological framework that linked the three assessments, the findings on the costs, benefits, and potential return on investment from implementing workplace wellness initiatives in Alberta are based on a 43 year evaluation period (2008 to 2050) and financial outcomes are in constant dollars from the year 2000 (HDR Decision Economics, 2009).

- The expected discounted cost of implementing a comprehensive workplace wellness program in Alberta from 2008 to 2050 is estimated at \$11.5 billion, or approximately \$274 million per year.
- The expected discounted cancer-related benefits from 2008 to 2050 per one percent program effectiveness are as follows:
  - **Physical inactivity:** \$3.2 billion in benefits which covers 28 percent of costs, therefore requiring 4 percent program effectiveness to break-even.
  - **Smoking:** \$2.9 billion in benefits which covers 25 percent of costs, therefore requiring 4 percent program effectiveness to break-even.
  - **Low Fruit and Vegetable Intake:** \$2.4 billion in benefits which covers 21 percent of costs, therefore requiring 5 percent program effectiveness to break-even.
  - **Obesity:** \$1.2 billion in benefits which covers 11 percent of costs, therefore requiring 9 percent program effectiveness to break-even (HDR Decision Economics, 2009).

Overall, there is a potential for improvement in preventing cancer through targeting risk factors in the workplace. There is a particularly strong financial case by comparing benefits to costs at only a 1 percent level of program effectiveness. This also excludes the additional benefits from preventing other chronic diseases and the impact of joint risk factors (e.g. reducing exposure to one risk factor might help reduce exposure to others).

The relative difference between risk factors is driven by a number of factors. In particular, the prevalence of population exposed to the risk factor, the baseline probability of getting cancers assuming non-exposure to modifiable risk factors (i.e. absolute risk), the participation rate in the wellness programs and the relative risk of getting cancer if exposed to the risk factor. To provide more refined estimates, a greater understanding of the baseline probabilities assuming non-exposure to modifiable risk factors (i.e. absolute risk) and the participation rates by risk factor is required.

## Summary

Workplace wellness programs are cost-justified from the employer perspective because over the long-term they provide benefits that outweigh the costs of such programs (in terms of reduced absenteeism, reduced health premiums, improved productivity, etc). A greater understanding of the effectiveness of workplace wellness programs is required to determine the potential cancer-

related benefits. For example, different levels of program effectiveness between risk factors could significantly change the relative benefits between risk factors.

Our findings provide insight as to the potential ROI from implementing a comprehensive workplace wellness program in Alberta. They do not take into account any employee-related costs and/or the additional benefits beyond cancer prevention (e.g. reduced incidence of other diseases, company benefits in terms reduced absenteeism, reduced health premiums, etc.). These benefits would be over and above the cancer-related impacts captured in the methodology.

There is a wide range of uncertainty in financial outcomes as depicted by our results. Due to the large degree of uncertainty in these estimates, extreme caution must be used in drawing conclusions on the relative importance of risk factors and potential comparisons. However, overall, this study has shown that there is a potential for improvement in preventing cancer through targeting risk factors in the workplace. The Workplace Wellness Program believes strongly that the information presented in this section effectively demonstrates the potential for great economical return by preventing cancer through workplace wellness initiatives.

## **Appendix :**

### Population attributable fraction

*The contribution of a risk factor to a disease or a death is quantified using the population attributable fraction (PAF). PAF is the proportional reduction in population disease or mortality that would occur if exposure to a risk factor were reduced to an alternative ideal exposure scenario (e.g. no tobacco use). Many diseases are caused by multiple risk factors, and individual risk factors may interact in their impact on overall risk of disease. As a result, PAFs for individual risk factors often overlap and add up to more than 100 percent.*(W. World Health Organization, 2002).

The formula for calculating PAF is shown below in Equation 1. For risk factors with continuous rather than discrete exposure levels there is an analogous formula for PAF involving integration of the exposure level distribution (not shown).

---

## **Chapter 5: Guiding principles of successful workplace wellness programs and best practices**

In our review of literature on global best practices for successful workplace initiatives it became clear that although there are a multitude of different approaches used by employers to improve employee health and wellness, there are several principles of success that consistently emerge. Due to the large number of possible studies for consideration, it was not possible to include all those we found insightful or appropriate. Instead we have focused on highlighting examples of best practices and transferable examples for each modifiable risk factor.

### **Guiding principles for successful workplace wellness interventions**

The following section highlights the most widely accepted guiding principles in workplace wellness and health promotion according to numerous literature sources identified (Health Canada, 2004), (Sparling, 2010), (The Health Communication Unit (THCU), 2004b) . The AHS workplace wellness program believes that these principles should be strongly considered in the development and implementation of a successful, comprehensive workplace wellness strategy. Furthermore, these principles (in no particular order) were used later in this chapter to assess study quality.

#### **Principle 1: Successful workplace wellness programs are comprehensive in nature and have multiple integrated components.**

Effective workplace wellness programs should recognize the importance of the spectrum between disease prevention and disease management and strive to encompass both in a single approach. Examples of integrated components necessary in a comprehensive workplace wellness program include a strategy that focused on multiple disease risk factors, employee health insurance coverage, worker health programs, and worksite health promotion.

#### **Principle 2: Successful workplace wellness programs need to be ingrained into a company's culture and involve the support of senior management and the top company leaders (i.e. CEOs).**

These senior management personnel should provide visible, enthusiastic support and commitment. This participation is crucial for employees to understand their employers take workplace wellness seriously and they should in return. Ultimately, this creates the possibility of a supportive environment for implementation of workplace wellness initiatives (The Health Communication Unit (THCU), 2004b).

Furthermore, this commitment by leadership should also be clearly stated as a principle of success for the organization, preferably in the company's vision or mission statement. If possible, the workplace wellness initiatives should be integrated into an overall workplace health policy, supported by a workplace wellness team. As a benefit to the employer, their commitment and concern for their worker's health and wellness will likely have a positive impact on employee morale, loyalty, and overall retention.

**Principle 3: Workplace wellness programs should be open to all employees and meet the diverse needs of all company employees, regardless of their current level of health, job category and location.**

In order for workplace wellness programs to be successful, program developers must give consideration to employees that may already have serious health problems or conversely are already in good health. Another, commonly stated challenge when creating an inclusive workplace wellness strategy is how to provide services to employees who are located at different, work sites, who travel frequently for business or who work from home (Health Canada, 2004).

**Principle 4: Successful workplace wellness programs should include systematic, regular health assessments for employees, along with timely and meaningful feedback.**

This condition for success should include providing assistance to employees with setting realistic health goals and tracking their individual progress. This continual monitoring will also help employees sustain healthy behaviors over time.

**Principle 5: Workplace wellness programs must be tailored to the needs and preferences of the employees, while also considering the special features of each workplace environment.**

The planning and implementation of initiatives should consider the optimal use of internal resources and consider any potential challenges, such as limited space. It is important to note that a successful initiative in one workplace will not necessarily be as successful or appropriate in another. As mentioned previously regarding employee health assessment and progress monitoring, identifying the health needs of employees should be done in a systematic, standardized fashion and with the input from employee focus groups. Program designers must work together with management, unions and employees to consider not only the interventions itself but how to maximize intervention delivery to help ensure engagement. For example, this could include using existing workplace email or intranet to promote activities (Health Canada, 2004; The Health Communication Unit (THCU), 2004b).

**Principle 6: Workplace wellness programs should consider using creative tangible and intangible incentive-based programs to maximize participation.**

Incentive-based programs have been reported in the literature and anecdotally as a way to increase levels of employee participation. However, questions still remain about how to most effectively use incentives in workplace wellness and health promotion in general. The body of current evidence supports that in the same way workplace wellness programs need to be tailored to the preferences of the individuals, so do the incentives used.

**Principle 7: There must be long term commitment by the organization to workplace wellness, in particular commitment to continue an initiative over the duration required to successfully demonstrate behavioural change.**

This commitment will ensure the sustained benefits of the initiative in question. The initiatives should be adaptable, flexible and valued, regardless of changes in incoming personnel (including senior management), economic conditions and business operations (The Health Communication Unit (THCU), 2004b).

**Principle 8: Successful workplace wellness programs should link their ongoing health promotion efforts to safety audits, workplace wellness policies and individual job performance indicators whenever possible.**

Workers who follow safety practices are less prone to error and injuries and are more productive. Similarly, if those employees are healthy and participate in workplace wellness programming it can be argued that they will experience positive benefits (e.g. more alert, energetic) and work more safely and efficiently. Additional employer standards beyond those focusing solely on safety should be developed and adopted.

**Principle 9: Successful workplace wellness programs are inclusive and extend health promotion services to employee spouses and family members.**

By expanding wellness programming to family members, employers give recognition to the fact that their employee's health is determined by an interdependent set of factors including lifestyle practices. Health promotion research has consistently shown that health behaviors are strongly influenced by families and social networks. Furthermore, as employer health care costs frequently cover the health costs of the employee and their family, inclusive health promotion interventions make good business sense and can demonstrate an even greater return on investment.

Moving beyond the organization and into the community, through avenues such as participating in recreational sport leagues or active charity events (i.e. Ride to Conquer Cancer) also demonstrate organizational commitment to health and wellness.

**Principle 10: Workplace wellness programs must include continuous, systematic monitoring, tracking and evaluation of their effectiveness at both the individual and organizational level.**

Successful workplace wellness programs regularly evaluate how well they are doing and use collected data to adapt and improve. The evaluation process should commence with collection of base-line data from participants, including explaining why the collection of information is vital to employees and be inclusive to measure outcomes such as employee satisfaction in addition to strictly reporting business benefits such as reduced employee absenteeism. Baseline health indicators (i.e. BMI) taken from employees at the onset of the intervention are needed to track employee health progress over the course of initiative. Moving forward, findings and lessons learned from the evaluation of past interventions should be incorporated into the design of future, results-oriented company programs (The Health Communication Unit (THCU), 2004b).

## **Scan of best practices in workplace wellness health promotion**

Literature reviews conducted in a standardized fashion synthesize the results (sometimes with conflicting findings) of many individual studies and grey literature sources (i.e. government reports). Results are summarized in a consistent format to provide a more robust overview of the body of literature, rather than the findings of a single study. As such, the findings contribute to the evaluation of both existing and new technologies and practices. Reviewed evidence can then be utilized to assist with program planning by identifying the most beneficial and practical interventions. Inclusion standards and exclusion criteria can then be used to refine search results for the most applicable best or most promising practices for a jurisdiction, while eliminating irrelevant or undesired interventions (see criteria below) (PHAC, 2010).

### **What makes a best practice?**

Although there is no consensus on what exactly constitutes a “promising” or “best” practice, several interpretations were identified in our review. Best practices in workplace health promotion / wellness occur when the processes and activities associated with health related organization/workplace issues are high quality examples grounded in a defined framework, allowing for evaluation and objective comparison (Farris, Haney, & Dunet, 2004). Comparatively, another interpretation used by the Canadian Public Health Agency’s “Canadian Best Practice Portal” (2010) is the following :

*Best Practices are interventions, programs/services or strategies, or policies which have demonstrated desired changes through the use of appropriate well documented research or evaluation methodologies. They have the ability to be replicated, and the potential to be adapted and transferred. A best practice is one that is most suitable given the available evidence and particular situation or context.*

Examples of criteria used to evaluate if an intervention should be considered a “promising” or “best” practice for our review included but were not limited to the following (Dubois et al, 2008), (Farris, Haney, & Dunet, 2004) :

- Addresses chronic disease or health promotion as related to workplace wellness
- Designed for primary or secondary prevention, or reducing risk factors previously identified in our situational analysis methodology
- Identified programs and strategies could be used (as a whole or in part) to inform our existing or planned programs
- Documented evaluation
- Evidence of quality has been assessed by peer reviewers and assigned a strong overall score, indicating the best quality. Strategies are replicable and adaptable
- Intervention was effective in eliciting change and considered “effective” if a statistically significant difference in one of more risk factor indicators (i.e. BMI) was demonstrated in the study vs control group

- Preference was given to interventions that demonstrated long term risk factor modification, not just short lived, positive results
- Sufficient information is available, including: descriptive information of topic and population addressed goals / objectives, strategies and activities; and evaluation design and outcomes (results).
- Interventions clearly demonstrated multiple guiding principles of successful workplace wellness programs as described earlier in Chapter 6.

### **Define objectives and search criteria**

The purpose of this literature review was to identify what the Workplace Wellness program team considers examples of best practices in workplace wellness interventions related to modifiable risk factors of cancer. Maintaining the scope of the overarching SA, the specific cancer risk factors reviewed included tobacco reduction, healthy eating, physical activity and healthy weights

The identified best practices were grouped according to the modifiable risk factor they were targeted towards. The initial focus of the SA was cancer prevention and was later expanded to include chronic disease as well. As such, the majority of best practices identified were related to cancer prevention, several interventions related to other chronic diseases were also analyzed and have been presented. If possible, content analysis of initiatives and interventions will report their effectiveness in priority areas.

**Step 1. Systematically identify interventions related to workplace wellness.** A standardized literature search was conducted to identify interventions related to our selected modifiable risk factors for cancer and other chronic diseases. Workplace wellness terminology often changes with similar terms used interchangeably. For this reason we needed to be careful and expand our terminology to include “worksites health promotion programs” and “worksites” wellness programs.

The literature search include searching the following databases; **Google Search, Medline, Pub Med, National Quality Institute (NQI), WELCOA, The Health Communication Unit, Centre of Health Promotion, CRD Dare and Canadian Centre for Occupational Health and Safety (CCOHS)**. Gray literature sources will also be searched through web searches and recommendations from scientific experts in order to find relevant official reports and documentation.

The following key search terms are used:

- Workplace Wellness
- Global Best Practices in Workplace Wellness
- Global Best Practices in Workplace Health Promotion
- Health Promotion in the Workplace

The key search terms were selected from recommendations according to Interactive Domain Model (IDM) Approach to Health Promotion, as presented by Kahan & Goodstadt (2002). In

addition, the reference lists of the most relevant publications were hand-searched (“snowball sampling”) to identify additional related material and additional key search terms.

**Pertinent health promotion resources:**

In addition to the databases searched general and cancer specific resources were included in our best practices review to increase the robustness of our analysis:

**A. General resources included:**

- National Quality Institute
- University of Toronto’s Health Communication Unit
- WELCOA (Wellness Council of America)
- New Zealand Well at Work / Workplace Wellness
- HDR/Decision Economics Report
- Working Well : A Global Survey Results in Health Promotion and Workplace Wellness Strategies / Buck Consultants
- University of Michigan Health Management Research Centre Dee Eddington

**B. Cancer specific resources included:**

- Nutrition and Physical Activity Situational Analysis Report (September 2009)
- Canada Public Health Agency’s “Canadian Best Practice Portal” (2010)
- Cancer in Alberta Regional Picture 2006/ 2007
- Canadian Cancer Society, Manitoba Division /Knowledge Exchange Network for Evidence Informed Interventions

**Step 2. Apply exclusion criteria to eliminate studies inappropriate for use.** The following exclusion criteria were applied to screen out ineligible literature.

Interventions for review were limited to those published since 1989, as best practices in workplace wellness have changed significantly over time. The cut-off of 20 years would minimize the impact of substantial changes in the workplace that would reduce the relevancy of earlier studies. However, if found to be especially relevant or seminal older papers may be utilized. Only literature in English was reviewed however, articles written in another language but with an abstract in English were considered for translation

This Workplace Wellness Situational Analysis excluded modifiable risk factors relating to the environment and/or occupational cancers. Furthermore, skin cancer modifiable risk factors will not be included in the current Situational Analysis as the Environment Unit, Health Protection, Alberta Health Services will be examining outdoor workers and workplace interventions for ultraviolet radiation, sun safety etc. in their Situational Analysis.

**Step 3: Best practices scan.** The final step in the scan was the summarizing and review of a best practices as related to their modifiable risk factor. Literature review tables and other supporting documentation will also be presented in the appendix of the document. In addition to best practices for each modifiable risk factor, further examples of interventions for each modifiable risk factor identified in the literature are provided after each best practices section for further consideration.

### **Best practices for individual risk factors**

#### **Risk factor addressed: Physical activity**

##### **Examples of best practices in workplace physical activity**

*The following examples of workplace wellness interventions relating to physical activity are presented because they involved multiple principles of successful workplace wellness strategies. Additionally, each had documented evaluation and results or were considered innovative in some way.*

**Live for Life.** Live for Life was a workplace wellness intervention designed to increase the amount of vigorous exercise among working adults conducted by Duke University Human Resources department in New Jersey. The age, gender and socioeconomic status of participants were not available for this two year study (Duke University Human Resources, 2005). The intervention began with a 3 hour introduction lifestyle seminar to participants and consisting of:

1. Annual Health Screenings
2. On- site Exercise program with space, equipment, regular classes and it was free of charge to employees
3. Media Marketing Program – Highly visible health campaigns through newsletters, health fairs and contests and displays in cafeterias, hallways and restrooms
4. A smoking cessation program was also included.

The intervention was run by a professional health promotion group to teach employees how to alter personal behaviour and maintain positive lifestyles change. Each participating employee received a quarterly summary of lifestyle points earned for lifestyle improvements and fitness achievements. Final participant evaluations were done by contacting employees at the end of the program for progress information and reactions to the program. Additionally, the intervention was identified by the Canadian Cancer Society, Manitoba Division /Knowledge Exchange Network for Evidence Informed Interventions summary report as having demonstrated effectiveness in behaviour change (2008).

The results of intervention were very encouraging with 20% of the women participants and 30% of the men in the intervention group reporting that they began a regular vigorous exercise program

over the two year period. Total daily energy expenditure in vigorous physical activity increased by 104% among the intervention employees.

**Walk in to work out.** Walk in to Work Out was another successful workplace wellness intervention targeting physical activity as a modifiable risk factor for cancer. The expected outcome was to increase active commuting behaviours, including walking and cycling of employees in several large workplaces in Scotland. The settings for the intervention included an acute hospital, a university and a health board in Glasgow, Scotland. Participants in the study were professional and managerial employees who were contemplating or preparing to actively commute. They were an average of 38 years of age and 64% were female. In addition to utilizing several of the principles listed above, the intervention was also based on the stages of change theoretical model.

After an initial contact and consent was given, the intervention participants received a pack that consisted of materials meant to enable the adoption of active commuting behaviours. Specifically, the pack included a booklet with educational and practical materials on walking/cycling routes, personal safety equipment including reflective safety accessories, shower and safe cycle storage information and useful contacts such as local cycle retailers. The pack also contained an activity diary in the form of a wall map for participants to record distances of their commutes, and preferred routes. The intervention also tried to maximize available resources with each pack costing only \$3.95 pounds (Mutrie, Carney, Crawford, Aitchison, & Whitelaw, 2002).

**Physical activity as a risk factor related to cardiovascular disease.** Another successful intervention we identified in our review assessed the effectiveness of a 12-week pilot employee workplace wellness program in reducing risk factors for coronary heart disease. The intervention was held in mid-sized university workplace where 50 university employees (including both faculty and staff) with at least one cardiovascular disease risk factor participated in the program. Forty-two of the 50 participants were female. The risk factors targeted for the interventions included diet and exercise (White & Jacques, 2007).

All participants attended a 1-hour program overview session offered twice to promote attendance. Nineteen hour-long workshops were then scheduled at varying times to accommodate participants' schedules. The most popular workshops focused on topics such as: quick and healthy meals, yoga, stretching, exercise overview and coping with stress. Participants were then given dietary changes and asked to follow one of four exercise prescriptions and recommendations based on baseline activity level. Examples of dietary changes promoted included consuming at least 5 servings of fruits and vegetables, substituting healthier fats for trans and saturated fats. At the end of 12 weeks, each participant was to engage in physical activity for 30 minutes 6 days each week.

The intervention involved a strong monitoring and tracking component where pre- and post-intervention measurements related to coronary heart disease included weight, body composition, blood pressure, total cholesterol, low-density lipoprotein (LDL) cholesterol, high-density lipoprotein (HDL) cholesterol, total cholesterol ratio, triglycerides, and blood sugar. A participant survey was administered to assess adherence to the intervention. The correlation between adherence

and improvement in cardiovascular disease risk factors was also tested. Although the wellness program only lasted 3 months, each participant was asked to record their daily food servings and minutes and type of exercise each day. In addition, in this study the investigators followed up on participants who did not complete the program for their barriers to completing the program. The most frequent responses were increasingly demanding work schedules as the semester progressed. This information would be very useful in the future if a university work site was chosen as the setting of a workplace wellness initiative.

Significant differences were observed between pre- and post-intervention participant measurements of total cholesterol, LDL cholesterol, total cholesterol/HDL cholesterol ratio, triglycerides, and weight. A significant correlation was also shown to exist between self-reported level of participation in the diet aspect of the program and improvement in LDL levels. The 23-point drop in total cholesterol levels was clinically significant and correlates with significant reduction in CVD risk. The final conclusion of the intervention was that it demonstrated short term effectiveness in reducing cardiovascular disease risk (White & Jacques, 2007).

**Effective workplace physical activity interventions should consider including one or more of the following examples (CCS-KEN, 2010b):**

- Employees have access to on-site exercise facilities that are financially subsidized and maintained by the organization/ workplace
- The organization promotes employees walking or cycling to and from work by providing storage and change facilities (i.e. showers, lockers) for interested individuals. Flexible work hours to encourage these activities during poor weather conditions were also noted.
- The workplace / organization gives employees financial incentives to improve their physical fitness
- Information (eg. Print materials, intranet, email and information sessions) about physical activity, exercise and active living is provided to employees of the workplace/ organization
- Exercise and physical activities are organized for employees during work hours or additionally activities are organized for employees before and after work time. On site activities are also preferred if possible
- The workplace has financial resources (i.e. health spending accounts) available to develop physical activity and exercise initiatives for employees
- An assessment of the physical fitness of employees has been conducted recently along with additional counselling if possible
- The initiatives that promote physical activity, exercise or active living to employees are measured and evaluated at least once per year.
- Physical activity was built into the work day, including stretch breaks during meetings, walking meetings or employees were encouraged to use stairs over the elevator or escalator to and from meetings.

---

**Risk factor addressed: Nutrition in the workplace****Examples of best practices in workplace nutrition interventions:**

**Treatwell 5 – a- Day.** Treatwell was a 20 month workplace wellness intervention with the aim to increase fruit and vegetable consumption in working adults. Conducted in Massachusetts, the target audience for participants was males and females ages 35-49 (various ethnic groups) with a household income of less than \$30,000. The intervention participants were predominately female, with only 17 % of participants being male. The intervention was also unique in its inclusive nature because it featured participants both in the workplace and those in their homes (National Cancer Institute, 2009; Sorensen et al., 1998).

Each worksite was designated a worksite coordinator (WC) and included input from workers through an employee advisory board (EAP). The WC was the primary contact between the project and the worksites. The EAP was tasked with fostering ownership and individual tailoring of programs. Both the WC and EAB receive training and worksite dietitians received 1.5 days training. The intervention kick off included a 5-a-Day media campaign with a motivational slide show presentation and taste test (one hour in length) to introduce employees to the intervention.

There were three programs to this intervention:

1. Eatwell 5 –a –Day Program included ten half hour session to provide information to employees on how to purchase and prepare healthy meals This program component was taught by dietitians.
2. Meal Modification Program: Consultations with participants were made and as a result more healthy options were added to vending machines, at special occasions and in break rooms. Point-of –choice labels on fruit and vegetables, posters, videos and brochures are also placed where employees eat.
3. Fit-in-5: Situated in the home, this program was a five part series with each lesson tailored to different ethnic group and family lifestyles. This component was meant to foster participation between family members in meal planning, food shopping and preparation, and promote discussion about food and nutrition. Educational activities included games and contests along with a family newsletter containing nutrition information, practical tips, a question and answer section and grocery coupons.

This study resulted in a 19% increase in fruit and vegetable consumption by the intervention participants (Sorensen et al., 1998; Sorensen et al., 1999; Sorensen et al., 2007).

**Working Healthy Project.** The aim of this comprehensive workplace wellness intervention was to increase physical activity, increase fruit, fibre and vegetable intake, reduce fat intake and 58

promote smoking cessation in adults situated in workplaces in Rhode Island and south eastern Massachusetts. Study participants were predominantly Caucasian male blue collar workers with mean age 40.6 years. This intervention also utilized a conceptual framework with the theoretical models including individual, organizational and community activation as well as participatory strategies (Emmons, Linnan, Shadel, Marcus, & Abrams, 1999). This intervention was conducted over a 2 ½ year time period, highlighting a commitment to the intensity and duration required to effect change. The project made use of an employee advisory board and a worksite coordinator at each worksite. No specific training for these individuals was included.

The intervention components commenced with a kick off event (no details provided) and included educational programming consisting of classes for participants on skill building, social support and behaviour changes. In the educational classes participants were given motivational materials such as posters and brochures, self-assessment questionnaires, satisfaction surveys. Efforts to maintain participant engagement was accomplished by frequent contests, fitness challenges and monetary incentives. The intervention also included regular newsletters and special events.

Additional program components targeted at the larger environment included the following:

- Smoking Cessation Program: several smoking restriction policies and/or bans were implemented
- Cafeteria Modification Program: Follows guidelines used in the Working Well Trial
- Exercise Equipment: Increased space for exercise equipment, new equipment was purchased with participants offered training on the use of new equipment etc.

This successful intervention resulted in a 30% increase of physical activity, an 11 % increase in fibre intake and a 7% increase in fruit and vegetable consumption for the intervention group. Project did not yield a significant change in smoking behaviour. Cost information was unfortunately not provided. Again, this program was identified by the Canadian Cancer Society,

Manitoba Division /Knowledge Exchange Network for Evidence Informed Interventions summary report as having demonstrated effectiveness in behaviour change (2008).

### **Nutrition as a risk factor related to cardiovascular disease.**

In a 12 month workplace wellness intervention targeting cardiovascular risk undertaken by (Engbers, van Poppel, & van Mechelen, 2007), two government companies in The Hague (The Netherlands) were used to measure the effect of initiatives that included both a ‘food’ aspect and a

‘steps’ aspect. Each workplace selected was comprised of multi-story office building with one company being the “intervention” and one the “control” company. The companies were chosen because of the comparable job descriptions (i.e., office workers) of the employees. A combined total of 4400 employees at both companies were approached to participate and 694 subjects were found eligible, with 691 participating.

Prior to the commencement of the intervention, the following physical measurements were taken: height, body weight, waist and hip circumference, skin fold thickness. Blood samples were also taken to determine total cholesterol levels along with HDL and LDL levels.

The food-intervention took place in the worksite canteen and consisted of placing informational sheets in close vicinity to food products. Every 4 weeks one group out of six product groups was highlighted. On the information sheets the energy (kcal) value of six products was translated into the number of minutes needed to perform a certain physical activity (e.g., climbing stairs) to burn that number of calories. Differences between healthy vs unhealthy food options was also presented (i.e. salad vs. pizza).

The ‘steps’ aspect of the intervention involved:

- Using motivational prompts in staircases and on elevator doors
- Cut-out footsteps leading from the elevator doors to the stairs to encourage stair use
- Making the stairs more attractive/interesting through the use of motivational texts (including exercise related facts on the windows between floors)
- An innovative component of this intervention was the use of a large ‘slim making’ mirror was placed on every other floor in the staircases.

No intervention materials (for either the nutrition or exercise) were placed in the control company.

The results of the intervention found modest reductions in cardiovascular risk with a 12 month intervention group when compared to the control group. The intervention group had lowered total cholesterol levels and increased stair usage. The investigators concluded that, at least in the short term, the modest combined efforts of a nutrition and exercise resulted in a positive impact for employees (Engbers et al., 2007).

**Healthy-Directions Small-Business’( HD-SB) Intervention.** The workplace wellness study conducted by Hunt et al., (2007) was developed with the objective of reducing employees’ cancer risk by increasing their fruit and vegetable consumption, physical activity and promoting a daily multivitamin intake, while decreasing their red meat consumption (Hemp, 2004).

Several of the principles of successful workplace wellness interventions were utilized during this intervention including incorporating worker feedback through the establishment of employee advisory boards (EABs) at different worksites. The role of the EABs was to meet with management representation in order to plan and implement educational strategies and policies that would contribute to creating a workplace environment that supported healthy eating and physical activity patterns, along with tobacco control.

The HD-SB intervention included;

- providing health promoting activities and materials for employees' support network including friends and family (in recognition of their role as influencers of employees),
- providing one-to-one, small group (e.g. lunchtime walking groups) and worksite level activities
- WHP activity included large displays of actual employees engaged in healthy behaviours such as using the stairs instead of the lift),
- changes in company policies to support healthful behaviours (e.g. catering policies etc).

Specific recommendations from the EABs included incorporating having easy-to-do but low cost physical activities for employees and nutritional education about healthful convenient meals (particularly focused towards employees with limited resources and multiple family responsibilities).

The investigators identified that the worksites that enjoyed high rates of participation in the programs (using 75% participation rate from eligible employees) had well functioning EABs, and strong management support. Furthermore, the intervention recognized a culture of support was created whereby managers and employees were respectful of each other and could participate together in activities (Hemp, 2004).

**Effective workplace nutritional interventions should consider including one or more of the following examples (CCS-KEN, 2010a):**

- There is a workplace policy to promote nutrition and healthy eating in the organization. For example, guidelines are available to provide healthy food choices at catered meetings and events.
- Employees have access to nutritious, healthy meal and snack options for purchase at worksite food service outlets, such a cafeteria.
- Employees who attempt to improve their personal diets and nutrition behaviours receive support from the organization in the form of financial incentives
- Financial support is provided by the organization for employees to consult with qualified nutrition professionals, such as dietitians and nutritionists.
- Information ( printed materials, intranet, email and information sessions about nutrition, healthy eating and diet is provided to all employees of the organization
- The organization has the financial resources available to develop nutrition and healthy eating initiatives to employees
- In the past year, an assessment of the diets and nutrition behaviors of employees has been conducted
- Initiatives that promote nutrition and healthy eating to employees are evaluated at least once per year.

**Risk factor addressed: Tobacco use / Smoking behavior:**

Long term tobacco use is the most common cause of chronic obstructive pulmonary disorder (COPD) accounting for 80-90 % of all cases. As such, workplace wellness initiatives focusing on tobacco use reduction and cessation will have positive impacts on other chronic diseases other than cancer, such as COPD

**Examples of best practices in workplace tobacco use /smoking behavior:**

**Quit Smoking Program.** The Quit Smoking Program (QSP) intervention had the objective of aiding working adults in smoking cessation. The audience and setting of this study was adult workers in a university in Alabama. The study's participants were staff employed by the university with 22% being of administration/faculty, 30% clerical/maintenance, 30% being of professional non-faculty (including residents and nurses), and 18% technical/skilled crafts. The mean age of participants was 37 years of age. This intervention commenced with one contact with participant follow-up conducted up to 12 months post-intervention. All health educators are trained to implement the intervention (Windsor, Lowe, & Bartlett, 1988).

QSP consisted of two programs:

1. **Self-help:** Employees received the American Lung Association manual, *Freedom from smoking in 20 days*. This manual provided a structured, daily plan to cessation including behavioural contracts, self-monitoring, stress management, etc.

On the smoker's quit date (Day 17 after the initial visit), he/she was provided with a maintenance manual, *A lifetime freedom from smoking*. This manual encouraged continued cessation, emphasizes self-control techniques and the development of new behavioural and thought patterns consistent with being a non-smoker.

2. **Skill training/ Enhancement of social support:** This program used three behavioural approaches:
  - a. Learning/improving cessation skills
  - b. Enhancing commitment to cessation through a quit-smoking contract and defined activities
  - c. Increasing social support by developing a Quit Smoking Buddy and reinforcing through Buddy education

These skill building sessions were taught during a one-on-one, 20-30 minute, structured counselling appointment. Time was allowed for participants to ask questions, give feedback and discussion, including the employee's self-efficacy to quit smoking. In addition, cessation methods in the manual that were specifically relevant to the employee were emphasized.

As mentioned above, a key component of intervention was the Quit Smoking Buddy that established a supportive relationship between the participant and a non-/ex-smoker friend. The Buddy receives a letter that described his/her position and suggestions on what he/she could say or do during the cessation and maintenance stages of the intervention. The employee also received this letter, and had the option of having a similar letter sent to a spouse. Additionally, the employee signed a contract indicating his/her quit date; that he/she would contact the Buddy twice per week prior to the quit date; and once per day for a week following the quit date, the specific dates the Buddy will be contacted; and an agreement to perform breathing exercises during urges to smoke.

The results of a six week follow-up of the study participants showed a biochemically-confirmed quit-rate (BCR) in the intervention group of approximately 27%. One year BCR for the intervention group was approx. 19%.(Windsor et al., 1988).

### **Workplace tobacco cessation interventions: incentives vs. no incentives**

These interventions aimed to cease smoking in working adults. The study intervention targeted blue collar workers with a mean age of approximately 42.5 years. Participants included slightly more men than women. Seventy three percent were Caucasian, 46% had some college education and more than half had an annual income of over \$25,000 USD. The research study was conducted in California with the intervention running for 12 months. Some employees are trained as group facilitators. Information on the

cost of materials was not provided. Two theoretical frameworks, Stages of Change model and Social Learning theory were also incorporated into the design and implementation of the intervention (Koffman, Lee, Hopp, & Emont, 1998).

Small teams of five to seven participants were organized according to their working proximity and are led by employee group facilitators who received training on providing smoking cessation support. All employees received a self-help smoking cessation package developed by the American Lung Association. Furthermore, monthly, telephone counselling sessions are offered to employees. The counsellors helped participants develop a personalized smoking cessation plan, promote maintenance and prevent smoking relapse. Self-control and confidence building was emphasized during counselling sessions. Additional, maintenance sessions were also held that covered stress management, fitness, nutrition and weight control.

Another component of this intervention was a five-month cash incentive contest. Participants paid a \$50 initiation fee to be eligible for earning \$15 per month for complete abstinence from smoking during this phase. During the first month, \$5 could be earned by a participant if they smoked less than 80 cigarettes during that month. The employees were divided into 13 teams and individual earnings tallied to represent a team's total earnings. If any participant failed to abstain during a month, the \$15 was added to the grand prize with a sum contributed by the employer. Each month, per capita winnings for each team were posted on a "smoking barometer" chart that was placed in the lobby of each building. At the end of the five months, the winning team received 50% of the grand prize, and the second and third place teams receive the rest (Koffman et al., 1998).

In the study, there were two intervention groups: One including the incentive competition, and one without the incentive competition. All other parts of the intervention were the same. Both are included in both groups. After six months, the study's "incentive" competition group had an abstinence rate of 41%, compared with 23% in the "no-incentive group"; however, after 12 months the quit rates for both groups were not statistically significant (37% incentive vs. 30% no-incentive). As such, both methods are recommended for use by the principle investigators of the study. The intervention was also evaluated through a systematic seven year review by the Canadian Cancer Society Manitoba Division / Knowledge Exchange Network for Evidence Informed Interventions (2008).

### **Tools for health workplace wellness intervention**

The majority of workplace wellness programs we reviewed related to tobacco use were in office worksites. However, novel approaches to worksite health promotion are needed for high-risk workers who change job sites frequently. The objective of the "Tools for Health" tobacco cessation intervention was to test a behavioral intervention among construction laborers (Sorensen et al., 2007).

Using a randomized-controlled design, the investigators Sorensen *et al* tested the efficacy of a tailored telephone-delivered and mailed intervention to promote smoking cessation and increased fruit and vegetable consumption of construction workers. In collaboration with the Laborers' International Union of North America (LIUNA), 1108 eligible union members were initially invited to complete a base line survey with 582 members completing the final study survey.

The intervention consisted of:

- One-to-one motivational interviewing counseling sessions, delivered by telephone
- A mailed tailored feedback report
- Written educational materials, targeted to the specific needs and work experiences of construction laborers

In another effort to tailor the program to individual's needs, the intervention was delivered in either Spanish or English based on the participant preference. Within approximately 2 weeks of the baseline survey administration, each participant was mailed their tailored feedback report that introduced the program and provided personalized health messages for individual participant's responses to the baseline survey.

According to the baseline survey, 40% of control group participants and 45% of intervention group participants reported using any tobacco in the last seven days. At the end of the study, 8% of baseline cigarette smokers in the control group had quit, compared to 19% in the intervention group ( $p = 0.03$ ). In both groups, the mean consumption of fruits and vegetables at baseline was over five servings per day. The intervention group had increased consumption by approximately one and one-half servings, compared to a slight decrease in consumption in the control group. The investigators conclusions that a tailored intervention can be successful in promoting tobacco use cessation and increased fruit and vegetable consumption among construction laborers (Sorensen et al., 2007).

**Effective workplace tobacco interventions should consider including one or more of the following examples (CCS-KEN, 2010c):**

- The intervention included a policy related to reduction of smoking, such as smoke-free indoor workplaces, smoke-free company vehicles and smoke-free outdoor spaces  
Cigarettes are not available for purchase at the worksite
- The organization has the financial resources available to develop tobacco use initiatives for employees, for example, employees who attempt to quit smoking receive support from the organization in the form of financial incentives
- Employees who attempt to quite smoking receive support from the organization in the form of time off working hours to attend classes and or smoking counselling sessions
- Information (eg. via intranet, email, information sessions) on quitting smoking is available to employees of the organization
- In the past year, an assessment of the tobacco use of employees has been conducted (eg. number of employees who currently smoke or have smoked in the past)
- The initiatives that address tobacco use and smoking of employees are evaluated at least once per year.
- Organization currently offers initiatives involving counselling; including quit smoking buddy system, group counselling where employees are the facilitators, telephone counselling.
- Maintenance sessions where continued cessation is encouraged and self control techniques are emphasized including the distribution of self-help materials.

**Healthy body weights**

*During the development of this section for global best practices related to Healthy Body Weight it became evident that very few programs specifically address healthy body weights as a modifiable risk factor. Rather most programs target or combine initiatives to deliver workplace wellness*

*programming to address multiple risk factors, including physical activity. Therefore, in our review, the interventions listed below should not be classified strictly as interventions to address healthy body weights.*

**Examples of nutrition workplace programs are:**

**Guide to healthy nutrition promotion in workplace – Ontario 2002.** This resource tool kit was developed by the Nutrition Resource Centre, with funding from the Ontario Stroke Strategy - Ontario Ministry of Health and Long Term Care. As part of the Ontario Stroke Strategy, six projects, including this Guide to Nutrition Promotion in the Workplace, were funded to address health promotion and the primary prevention of stroke. The guide was grounded in health promotion strategies that have been previously successful in building a comprehensive workplace nutrition program such as awareness raising, participant skill building and policy development

The purpose of this Guide is to help practitioners promote, implement and support nutrition programs in the workplace. With step-by-step guidelines, the *Guide* is intended to be a "how-to" resource, featuring a snap shot of workplace nutrition programs currently available in Ontario, such as the Eat Smart! Workplace Programs and Food Steps: A Workplace Healthy Eating Program. Sample resources are also included, such as workplace nutrition assessment tools, sample policies and program logic models (Ontario Public Health Association, 2002).

**Eat Smart! – Workplace program toolkit.** The Eat Smart! Workplace initiative is a cafeteria program aimed at supporting healthy eating environments based on the following 3 criteria:

1. Healthy Food Choices – the facility must provide a variety of healthier food choices on the menu and by employee request, including whole grains, vegetables and fruit, lower fat options and substitutions.
2. Food Safety – the facility must have an excellent track record in food safety based on the requirements of Ontario's Food Premises Regulations and at least once full-time kitchen employee certified in safe food handling.
3. 100% Smoke Free – the facility must be in compliance with the Smoke Free Ontario Act (2005) and not sell tobacco products or accessories.

This Toolkit is meant to serve as a resource for public health professionals implementing and monitoring *Eat Smart!* programs at the local level. This is the only toolkit that we identified that assists with implementing a specific program and not just how to implement a general workplace wellness program. The initiative has been very successful today with over 147 Eat Smart! workplaces currently operating in the province of Ontario.

Reference: Eat Smart! Program is financed by the Government of Ontario, supported by the Nutrition Resource Centre of Ontario (NRC), an initiative of the Ontario Public Health Association (OPHA). Provincial partners include the Canadian Cancer Society (Ontario Division) (CCS) and the Heart and Stroke Foundation of Ontario (HSFO). For more information, they can be contacted for assistance at [eatsmart@opha.on.ca](mailto:eatsmart@opha.on.ca)

**The Health Works for Women (HWW) program** is a workplace intervention with the objective of helping female participants better their health through focusing on risk factors for nutrition, physical activity, tobacco use, and stress. The HWW program is implemented in North Carolina by the University of North Carolina: Center for Health Promotion and Disease Prevention research group. The specific worker population targeted for the intervention includes rural, blue-collar, female workers in North Carolina. The workplace wellness program has been in operation since 1993, with over 2000 women in eastern North Carolina having now having participated in this program.

The program provides tailored, personalized health information to women in the following topic areas: healthy eating, physical activity, smoking cessation, and stress management. Nine small to mid-size workplaces were randomly assigned to either intervention or delayed intervention conditions. After a baseline survey, an intervention consisting of two computer-tailored magazines and a natural helpers program was conducted over 18 months. At the 18-month follow-up, the intervention group had increased fruit and vegetable consumption by 0.7 daily servings compared to no change in the delayed group ( $P < 0.05$ ). Significant differences in fat intake were observed at 6 months ( $P < 0.05$ ) however not at 18 months. The intervention group also demonstrated improvements in strengthening and flexibility exercise compared to the delayed group. No differences in the smoking rates and cancer screening between study groups were observed.

Additionally, the HWW program also provides women with an opportunity to receive training and health information for the purposes of enabling interested participants to become health promotion champions in their respective workplaces and communities.

In addition to being evaluated for effectiveness, this intervention is informed by a systematic literature review originally prepared by Thorogood et al. (2007) entitled "A systematic review of population and community dietary interventions to prevent cancer." (PHAC, 2010), (Campbell et al., 2002). For further details on this intervention, including contact information for the program director, principle investigator etc are available through the HWW website, <https://healthworksforwomen.org/about.jsp>.

### **Healthy body weights- diabetes and hypertension prevention**

**The following are examples of comprehensive interventions that were identified as addressing either multiple risk factors in combination or multiple diseases other just cancer.**

Our review identified GE Canada as offering a comprehensive set of programs for health and wellness. The aim of **GE Canada's Wellness Programs**, as stated on their company website, are to improve quality of life for employees both at work and away from work, empower employees and offer programming to its diverse working population. Their strategy to workplace wellness included five focus areas, three of which are chronic disease related; breast cancer, diabetes and hypertension. The five focus areas were determined by stakeholder feedback, including members of a full time workplace health, safety and wellness team

GE Canada's comprehensive workplace health, safety and wellness program includes the following:

- Educational programs (e.g., health fairs and wellness presentations) to provide employees with the information necessary to “make informed decisions about their health” and access the health system
- Launching the “Health by Numbers” program. “Health by Numbers” is an educational program based on issues of obesity, diet and lack of exercise. It uses a helpful “health by numbers” reminder for healthy decision making:
  - 0 – No smoking
  - 5 – 5 helpings of fruits + vegetables daily
  - 10 – 10, 000 steps daily
  - 25 – Body mass index (BMI) under 25
- On-site Fitness Centre
  - Including initial and follow up employee health assessments, exercise classes, sports, community activities, etc.
- Worksite cafeterias provide healthy meals and labelling of food value
- Supportive smoking cessation services for individuals who want to quit smoking
- Health promotion communications in the form of emails, newsletters and web-site content

The effectiveness of the workplace wellness programming has been monitored and evaluated through a H&S (Health and Safety) Framework Scorecard and personal satisfaction surveys of employees who participate in initiatives. Short term disability statistics and absenteeism rates have also decreased and shown positive impact. GE Canada is continually investigating ways to improve the measurement and evaluation of their educational programs (The Health Communication Unit (THCU) University of Toronto, 2004).

Another Canadian intervention conducted in Halifax, Nova Scotia, entitled “**Project Impact**” demonstrated a positive return on investment (ROI) for employers wanting to assist employees whose risk factors for cardiovascular disease could pose serious health issues in the future. The project, which commenced in 1999 and ran till 2000, featured an innovative partnership between stakeholders with an invested interest in employee health; Aventis Pharma, Atlantic Blue Cross Care and the Atlantic Health and Wellness Institute. Approximately 2,700 employees first consented to a pre-screening process where information was collected about each individual to develop a cardiac score identifying the worker's risk for cardiovascular disease. Employees with two or more modifiable risks for cardiovascular disease (smoking, obesity, high blood pressure, high cholesterol and lack of physical activity) were invited to take part in the study.

Of the resulting 600 employees who were identified and volunteered to participate, half were placed in an intervention group, the other half in a control group. Following an intense, three-month intervention program (featuring a smoking cessation program, an individualized physical fitness program, nutrition counselling, and stress management sessions), researchers measured the impact of the intervention program on participants' risk factors for cardiovascular disease, compared with their baseline results before entering the program. Participants placed in the control

did not receive any intervention whatsoever. Intervention participants' results were also compared with their control group counterparts.

The project's final results were very encouraging; with the intervention group participants having reduced all risk factors, and showed sustained improvement in their cardiac health. ROI calculation estimates ranged from \$1.64:1 (that is for every dollar spent on the intervention, the employer received a return of \$1.64) to \$3.98:1 (for employees in blue-collar occupations). This study is the one first of its kind in Canada and supports the business case for employers to consider similar health promotion efforts in their workplaces.

### **NZ Well at Work example of workplace health promotion intervention**

The 'Working Well Trial' intervention was a long term, five year cancer control workplace wellness intervention conducted using a randomized matched-pair design in four work sites (Patterson et al., 1997). The intervention was designed with an approach aimed at behaviour change through a stepwise fashion; initially focusing on raising awareness, followed by skills training and action, and lastly behaviour maintenance. The intervention included a comprehensive communication/education strategy (launch, educational materials and seminars) and environmental modifications (e.g. changing food offerings, vending machines and catering policies) and the creation of an employee advisory board to provide input into the intervention.

The Working Well intervention was also based on the theoretical models derived from individual, organizational and community activation theories (Patterson et al., 1997). The evaluation of the Working Well Trial found that intervention participants were more likely than the control group to be at a later stage of dietary change and that those who were in the later stage of change used or took advantage of more program components than did those in earlier stages (Patterson et al., 1997).

### **Effective workplace healthy weight interventions should consider including one or more of the following examples (CCS-KEN, 2010a):**

- There is a workplace policy to promote employees achieving and maintaining a healthy body weight in the organization. Employees may also receive support from the organization in the form of financial incentives
- Information (eg. via intranet, email, information sessions) about achieving and maintaining a healthy body weight is provided to employees of the organization
- In the past year, an assessment on the body weights of employees has been conducted (e.g., number of employees with a body mass index (BMI) of 25-29.9 (overweight) or 30 or greater (obese).
- The initiatives that address healthy body weights are evaluated at least once per year.
- The employer currently offers commercial weight management programs implemented at the worksite, delivered by an external service provider such as Weight Watchers

- Food addiction and eating disorder assistance services
- Group counselling that incorporates weight loss/maintenance, nutrition, and physical activity counselling.

**Conclusion:**

Reducing risk factors for cancer and other chronic disease is possible and offers a great potential for disease prevention. Numerous examples of effective workplace wellness interventions showing a wide range of positive impacts have been demonstrated for all modifiable risk factors. Several principles of successful workplace wellness initiatives were identified as common themes in these interventions. For example, the careful monitoring and tracking of participants contemplating or engaging in workplace wellness initiatives is needed to measure real progress toward disease prevention and will help to determine the impact and success of an intervention. Baseline, annual health assessments of participants are crucial when designing and implementing interventions.

Another key finding that emerged was stakeholder engagement and the vital roles played by stakeholders and intervention participants. Internal stakeholders include not only senior management and workplace health, safety and wellness staff but also employee participants. Employee focus groups will provide employers with valuable feedback on their employees' needs, preferences and goals of workplace wellness interventions; greatly assisting in successful workplace wellness strategies.

## **Chapter 6: Recommendations and Next Steps**

There is sufficient evidence to conclude that comprehensive workplace wellness programs targeting non communicable disease have been successful at improving employees' health by reducing risk factors, increasing employees' fruit and vegetable consumption, improving employee engagement and productivity, and producing return on investment (through cost savings and increased productivity) (World Economic Forum/WHO, 2008). Furthermore, there is specific evidence which confirms that workplace interventions are effective at promoting risk reduction for cancer and chronic disease, which was the central focus of this situational analysis.

Comprehensive workplace wellness will be a critical component of the AHS-HP-DIP approach to chronic disease prevention both as a setting for workplace health promotion, and as a strategy for improving health behaviors of Alberta's working population.

The following recommendations provide a synthesis of key findings from the situational analysis that have implications and concrete suggestions for Alberta workplaces, along with specific actions for AHS-HP-DIP moving forward.

**1) Successful workplace wellness programs are comprehensive in nature and have multiple integrated components**

Effective workplace wellness programs should integrate disease prevention and management in conjunction with health promotion strategies. Essential components of a comprehensive strategy include (but are not limited to):

- Providing health education;
- Creating environments that are supportive of good health both physically and socially;
- Developing initiatives that address risk factors for chronic disease, including nutrition, physical activity, tobacco, healthy body weight, alcohol and stress management;
- Linking workplace health initiatives to programs like employee and family assistance programs, workplace safety programs and health insurance coverage;
- Supporting individual behaviour change; and
- Providing opportunities for health screening

---

**When planning and designing a successful workplace wellness program, organizations should ask the following questions (Russell, 2009):**

- Is the program based on theory and evidence of effective practice?
- Have clear goals and objectives been established?
- Does the program and process foster networks and partnerships?
- Is the approach to program development participatory and inclusive of all staff?
- Are peers/colleagues recruited to promote and deliver the program?
- Does the strategy include tailored/targeted interventions?
- Have a variety of communication and education strategies been utilized to promote the program?
- Does the program have strong management support?
- Is there a focus on modifiable risk factors for chronic disease?
- Are existing social support systems included into program?
- Does the program promote the creation of new social support systems?
- Is environmental support included as an essential component?
- Does the program remove barriers to participation?
- Is it flexible (eg. The types of activities offered, times available for staff to participate)?
- Does the program include the use of incentives?
- Is employees' self efficacy improved?
- Does the program include research and evaluation components?
- Are health risk assessments/screenings included as a part of the program?

***Recommended action for Alberta's workplaces:*** Conduct a needs assessment to determine the needs and capacity of the organization to develop a comprehensive workplace wellness program. This involves assessing employee requests and organizational capacity (through leadership and departments like HR, OHS, wellness) before developing the program. This process helps to ensure that wellness programs are tailored to the needs and preferences of the employees. Where necessary, organizations should engage experts for recommendations and support in the assessment or planning of the program.

***Recommended action for AHS-HP-DIP:*** Provide or link organizations to relevant templates and/or assessment tools for organizations to assess themselves, including key components of successful workplace wellness programs. Resources provided by the Health Communication Unit will provide significant support in this area. Offer support for organizations in areas identified as opportunities for improvement in comprehensive workplace wellness programming.

**2) Successful workplace wellness programs need to involve senior management and the top company leaders (i.e. CEOs).**

The support for workplace wellness initiatives and programs by senior management along with continued engagement has been recognized as another crucial element to a successful workplace wellness program. Alternatively, some senior management may already be convinced of the benefits of workplace wellness and are unsure how to incorporate workplace wellness more fully into their company.

**Recommended action for Alberta's workplaces:** In cases where workplace health programming is driven by management and/or employees, it is critical to ensure the support and buy-in of senior leadership or the CEO.

**Recommended action for AHS-HP-DIP:** AHS-HP-DIP will explore how best to communicate with these leaders about the benefits of workplace wellness (i.e. learn how to “speak their language”) through consultations with health economists and CEO’s themselves. Development of a communication plan is necessary to relay the benefits of WHP programming to this audience.

**3) Workplace wellness programs should measure (and demonstrate) a clear return on investment (ROI).**

There have been many studies that have investigated the ROI from the company perspective and these studies have provided evidence that workplace wellness programs are cost-justified from the employer perspective, providing benefits that outweigh the costs of such programs. Most likely, CEOs and other senior management are not fully aware of the benefits of workplace wellness and the potential long term cost savings associated with effective work place wellness initiatives. Based on the economic assessment there is a particularly strong financial case under the contingent evaluation method, as illustrated by comparing benefits to costs at only a 1 percent level of program effectiveness.

**Recommended action for Alberta's workplaces:** In cases where workplace health programming is driven by management and/or employees, it is critical to ensure the support and buy-in of senior leadership or the CEO. One of the first steps in doing this is to research and demonstrate the value, including the business-case or ROI of these programs.

**Recommended action for AHS-HP-DIP:** Included in the development of a communication plan is the demonstration of an employer “business case” for workplace wellness to CEO’s. This may include the research and development of fact sheets regarding the ROI findings, particularly those

showing savings over time, to convince employers and other interest groups (i.e. insurance benefit providers) that participation and investment into comprehensive workplace wellness programming encourages long term sustainability.

**4) Planning and supporting a culture of health: a long term commitment to workplace wellness involves participation from the organization and its employees**

## **Healthy Culture**

Literature and best practices surrounding effective workplace wellness initiatives consistently report the crucial role of a supportive culture, including staff, family and community involvement. Creating a culture of health involves a concentrated effort to coordinate management support, policies, environmental supports and programs sponsored by the organization. Also, participation should be open to all workers from all job categories and locations, including encouraging these individuals to assist in the development and implementation of programming; this helps to enhance the sense of value and ownership on behalf of employees.

***Recommended action for Alberta's workplaces:*** All employees should be engaged and become active participants in the identification of challenges and solutions related to workplace wellness, and continue to be involved in all stages of programming. Support from senior management, ongoing assessments and subsequent adjustments to the program along with a long term commitment to workplace wellness will help to develop a positive culture around health. By involving staff and conducting baseline and ongoing assessments of the physical, social, and emotional health, organizations can make great strides in improving the health of their employees..

Employee focus groups are an excellent way to develop new programs that will have the largest positive impact to the company's work force. Focus groups can effectively facilitate a culture of support and participation by encouraging active contribution, and by helping employees to realize their feedback is valuable

***Recommended action for AHS-HP-DIP:*** AHS-HP-DIP will need to determine how to communicate with, and make issues related to workplace wellness important and relevant to employers and employees. Furthermore, AHS-HP-DIP has an opportunity to work collaboratively with organizations by helping them assess their current state of health, the existing culture in their organizations, and by assisting in formalizing workplace wellness into their company's vision, mission statement, policies and/or programs.

## **Healthy Policies**

As a critical component of the social and physical environment, the workplace wellness survey revealed that the majority of workplaces did not have a policy specific to workplace wellness or health promotion.

**Recommended action for Alberta's workplaces:** Create written policies that support the vision and mission of the organization, and that enforce local and/or provincial health policies already in place. This may also include removing or lowering cost and access barriers to wellness programs or interventions offered by the organization.

**Recommended action for AHS-HPDIP:** AHS-HP-DIP will conduct a review of existing workplace policy frameworks and regulatory bodies that are applicable to workplace wellness. Second, efforts will be made by the AHS-HP-DIP Workplace Wellness program to position themselves as knowledge broker to assist and influence the creation and adoption of new or more effective policies targeting workplace health promotion. This will be accomplished through the development of policy briefs and minister briefs where appropriate. An example of a specific policy for review would be expanding joint occupational health and safety committees to include comprehensive workplace wellness programs, or amending existing provincial policies or regulations to incorporate elements of workplace wellness.

**5) Workplace wellness programs should consider using creative incentive-based programs to maximize participation**

Many workplace wellness research documents support the use of incentives, however further investigation is required in order to understand the complexities of their use. This includes learning about the various types of incentives and how they are best suited for use within the workplace health context.

In line with the philosophy of offering incentives for workplace wellness there is a potential for the implementation of reward and recognition programs for workplaces that have demonstrated excellence in their workplace wellness program. The winner or winners based on various categories could be recognized with healthy workplace awards. The criteria for recognition could be adopted and leveraged from the National Quality Institute (NQI) and overlaid with principles that AHS-HP-DIP considers best practices.

**Recommended actions for Alberta's workplaces:** Employer should consider offering incentives to keep employees healthy and reduce risks for chronic disease. Examples at the individual level include offering rewards for participating in wellness initiatives, discounted rates to access fitness facilities or recreational activities, rebates on health insurance premiums and recognition or promotion of wellness “champions” who have succeeded in their own health pursuits. Examples of provincial-level policy include provincial tax breaks for organizations who meet established standards for workplace wellness, rebates from the Workers Compensation Board (WBC) for lowered claims related to illness, lowered insurance premiums for organizations who's claims are reduced by having a workplace wellness program in place.

**Recommendations for AHS-HP-DIP:** A research review is needed to assess the conditions under which incentives have been demonstrated to be most effective, along with a parallel review of reward and recognition programs for workplace wellness.

AHS/HP-DIP could also work with participating organizations to help them leverage their existing workplace wellness initiatives and health benefits as a recruitment tool.

**6) Workplace wellness programs must include continuous, systematic monitoring, tracking and evaluation of their effectiveness**

Successful workplace wellness programs regularly evaluate how well they are doing and use collected data to adapt and improve. There are currently research gaps detailing the impact of workplace wellness initiatives on risk factors modification. There appears to be a relatively incomplete documentation of hard metrics to validate the success of wellness programs. Clearly, this represents important gaps between the objectives employers seek to achieve with their wellness initiatives and their ability to measure or demonstrate success.

Low levels of program measurement and effective tracking were mentioned frequently in most chapters of the SA, literature reviews, and workplace survey project. As identified in the literature, effective program evaluation, including documentation of outcomes, appears to be lacking. Anecdotal evidence of a program's effectiveness is often the only type of information or feedback recorded by organizations. Systematic evaluation with consistent, diligent tracking of findings is well identified method of enhancing the overall effectiveness of workplace wellness initiatives.

**Recommended actions for Alberta's workplaces:** An evaluation component must be built into all employer workplace wellness initiatives with their impact measured by meaningful key performance indicators established at the onset of the initiative. Validated monitoring tools, (including questionnaires, health assessment tools or one-on-one interviews) must be researched and reviewed, and adapted or developed to collect appropriate health and outcome/impact information of workplace wellness initiatives. These tools would be pilot-tested for relevancy, applicability and reliability prior to be implemented province-wide.

**Recommended actions for AHS-HP-DIP:** AHS-HP-DIP will provide organizations with links to appropriate, validated evaluation tools and education about evaluation processes. This will enable these companies to track their own workplace wellness programs and measure areas of success and where improvement is still needed.

---

**Conclusion and next steps: The Role of AHS-HP-DIP**

Although the situational analysis produced a significant amount of useful information and filled in critical gaps in knowledge about workplace health promotion, there is still much to be learned about Alberta's workplaces, the employees who work in them and effective practices to promote health and reduce chronic disease risk in the workplace setting. The following action steps are recommended specifically for the AHS-HP-DIP Workplace Wellness Program to explore in order to further develop and optimize the delivery of WHP programs in Alberta.

**1) Develop a research plan to learn more about the state of workplace wellness programming in Alberta*****a. Review existing programs, health standards, policies and criteria for workplace wellness programs:***

Conducting a review of strengths, weaknesses, opportunities and threats (SWOT analysis) and asset map of existing programs both internal and external to AHS is necessary process to learn more about best practices in workplace wellness programming. The subsequent findings would provide additional information about what services are commonly found in what industries and may eventually help with targeting programs by industry or worker demographics. This could be expanded to exploring the use of assessment tools like health risk appraisals (HRA's) or audits to identify underutilized areas for workplace wellness programs. An international scan of existing standards, guidelines or protocols will be conducted to support relevant local findings. An example of a specific policy for review would be expanding joint occupational health and safety committees to include comprehensive workplace wellness programs.

***b. Learn more about employee and family assistance providers (EFAP's), benefits and insurance providers:***

Additional research is needed to learn more and answer how employees utilize EFAPs and benefits, what employee's level of understanding and awareness regarding the role of EFAPs and benefits, and the different opportunities they can provide. It is recommended AHS/HP-DIP work directly with EFAPs, benefits providers and service providers to develop and work together to integrate the most meaningful policies, practices, services, education etc into the workplace.

***c. Expand the workplace wellness situational analysis to include additional risk factors for chronic disease***

The WW situational analysis focused on cancer and chronic disease prevention by influencing modifiable risk factors. The four risk factors of greatest concern were identified as tobacco use/smoking behavior, nutrition, physical activity and health body weight. In an effort to preserve the scope of this report, alcohol use and addiction, along with workplace stress were not investigated in detail. However, the workplace wellness situational analysis project team realize

these risk factors can have a large impact on cancer and other chronic disease reduction. Further research on these modifiable risk factors will greatly expand the applicability of future efforts.

***d. Survey small businesses and employees in Alberta about workplace wellness***

Many important findings emerged during the survey conducted on current and past workplace wellness initiatives in Alberta's top six industries. Unfortunately, due to resource constraints, the survey focused only on collecting data from workplace wellness personnel who worked in organizations with 300 or more employees. Workplace wellness initiatives will have the greatest impact on the health of Albertans if they can be implemented in the majority of organizations within Alberta. As Alberta's employers come in all shapes and sizes, each has their own set of priorities and potential challenges and opportunities. As a result, more investigation is needed to increase the sample size of the study and learn if the reported findings are externally valid for smaller businesses. It is quite possible that the differing business culture and capabilities will result in important differences that are essential for program design and implementation into these work sites. While it is critical to further investigate the spectrum of employers in Alberta, it is also important to leverage existing engagement with ongoing partnerships.

***e. Conduct stakeholder analysis and consultations:***

Consultation with stakeholders is a vital function for determining the most effective ways of engagement and communication with Alberta's industries. Employers and employees need to be aware of the full range of benefits from workplace wellness initiatives. AHS-HP-DIP should explore the possibility of creating a formalized stakeholder group including decision makers in Alberta workplaces, and be open to involving more stakeholders if gaps are identified. Opportunities to partner with stakeholders should be explored in order to enhance knowledge and advance actions on workplace health in Alberta's industries. It is very likely the approach and key messages regarding workplace wellness will need to be tailored towards various stakeholder audiences. For example, the most relevant findings to CEOs, CFOs etc could very likely be the return on investment and possible cost savings of implementing a workplace wellness initiative.

**2) Develop a functional mandate for the AHS-HP-DIP workplace wellness program:**

As of April 1<sup>st</sup> 2009, Alberta Health Services was created from the merger of regional health authorities and other health organizations in Alberta, including the Alberta Cancer Board of which the Workplace Wellness Program formally belonged. This re-organization, like any merger of this magnitude, has resulted in reprioritize and identification of opportunities for collaboration between formerly separate health service providers. In the current AHS structure, the Workplace Wellness Program is a program under Chronic Disease Prevention and Oral Health. As a result, the discussion, creation and approval of a Workplace Wellness functional mandate is now necessary. This mandate will help clarify the roles, responsibilities and scope of the Workplace Wellness program. Built into this mandate must be a consistent, comprehensive definition of workplace wellness that focuses on impacting modifiable risk factors.

### **3) Develop a knowledge exchange strategy**

Results of the workplace survey indicate that Alberta's employers are frequently seeking educational materials and credible sources for workplace wellness programming. The survey verified that much of the information (and sources) organizations retrieve is from the internet and through word of mouth. As there are many credible organizations who offer information on workplace wellness programming and initiatives, there is a need to employers with these resources.

#### ***a. AHS-HPDIP should establish itself as a "leader" and broker of information and resources regarding/related to workplace wellness:***

It is recommended that AHS-HP-DIP investigate the feasibility of serving as the primary contact source for companies or individuals in Alberta looking to develop a new workplace wellness delivery program or for ideas to more effectively run their existing workplace wellness program. In collaboration with provincial and local stakeholders, offering one central location for resources related to workplace wellness has great potential to improve the coordination and consistency of workplace wellness program delivery in the province. Examples of provincial stakeholders include Alberta Employment and Immigration (Workers Compensation Board), Alberta Health and Wellness, members of Alberta's industries, NGO's, benefits providers (Alberta Blue Cross), insurance providers, employee and family assistance providers.

Additionally, it is possible the AHS-HP-DIP and associated stakeholders could assist with a company's initiative design, implementation and evaluation design through the development of tailored resourced information packages to each participant, based on variables such as the size of the company in question.

Examples of resources that AHS could provide include i) employee health assessments, (ii) evaluation support and education to assess the impact of workplace wellness initiatives, (iii) employee survey tools designed to track participation rates and gather employee feedback in general, iv) Creation of a central database for the storage, analysis and tracking of results.

#### ***b. Develop a "business case" describing the return on investment (ROI) of workplace wellness programs for dissemination to Alberta workplaces.***

Workplace wellness programs are cost-justified from the employer perspective because over the long-term they provide benefits that outweigh the costs of such programs (in terms of reduced absenteeism, reduced health premiums, improved productivity, etc). A greater understanding of the effectiveness of workplace wellness programs is required to determine the potential cancer-related benefits. For example, different levels of program effectiveness between risk factors could significantly change the relative benefits.

AHS-HP-DIP Workplace Wellness must effectively leverage results from its own economic assessment including the ROI from implementing a comprehensive workplace wellness strategy, 79

as well as additional studies demonstrating ROI from the company perspective to create this “business case” to encourage workplace wellness programs and employer participation.

*c. Devise a communication plan to deliver the business case and to connect with Alberta employers, including policy briefs where necessary.*

AHS-HP-DIP should constantly be attempting to learn how best to communicate with CEO’s and corporate leaders about the benefits of workplace wellness. By “speaking their language” we can provide effective workplace wellness education to individuals in leadership roles. A communication plan, including a strategy for stakeholder engagement will assist in learning how we can best educate organizations about the benefits of comprehensive workplace wellness.

The ultimate objective of the findings from this situational analysis is to support the AHS-HP-DIP commitment to using evidence-based practice and a population health focus for chronic disease prevention to improve the health of Albertans through establishing its role as a leader in workplace wellness programming. The research included herein will serve as a foundation to inform the planning of primary prevention programs intended to address employee risk factor modification, the implementation of health-promoting workplace policy, and the development of workplace environments where healthy choices become easier choices.

---

## References

- Abbot, B., Manning, E., & Tucker, D. (2007). *Creating a culture of safety: In healthcare workplaces in newfoundland and labrador* Healthy Workplace Initiative.
- Alberta Cancer Registry. (2008). *2005 Annual report of cancer statistics* No. ISSN: 1705-0251).  
Edmonton, Alberta: Alberta Cancer Board.
- Alberta Health Services (2009). Nutrition and physical activity situational analysis: A  
Resource to Guide Chronic Disease Prevention in Alberta. Calgary, Alberta: Alberta  
Health Services
- Alberta Health Services Cancer Prevention Program & Oraclepoll Research Limited (AHS &  
ORL). (2009). *Prevention: Needs assessment of workplace wellness initiative in alberta*.  
Calgary, Alberta: Alberta Health Services.
- Alberta Health Services Cancer Prevention Program / Alberta Cancer Foundation (2008).  
Prevention: Working Together for a Healthier Alberta. Calgary, AB: Alberta Health  
Services Cancer Prevention Program
- Be-fit-body. (2009). *How much does a good wellness program cost?* Be-fit-body.
- Benedict, M. A., & Arterburn, D. (2008). Worksite-based weight loss programs: A systematic  
review of recent literature. *American Journal of Health Promotion*, 22(6), 408-416.
- Burton, N. W., Walsh, A., & Brown, W. J. (2008). It just doesn't speak to me: Mid-aged men's  
reactions to '10,000 steps a day'. *Health Promotion Journal of Australia : Official Journal of  
Australian Association of Health Promotion Professionals*, 19(1), 52-59.

Canadian Cancer Society Manitoba Division Knowledge Exchange Network. (2010a).

*Information Package for Evidence-Informed Interventions: Effective workplace nutrition interventions. Retrieved March 18<sup>th</sup> 2010, from <http://cancer.ca/ken>.*

Canadian Cancer Society Manitoba Division Knowledge Exchange Network. (2010b).

*Information Package for Evidence-Informed Interventions: Effective workplace physical activity interventions. Retrieved March 18<sup>th</sup> 2010, from <http://cancer.ca/ken>.*

Canadian Cancer Society Manitoba Division Knowledge Exchange Network. (2010c).

*Information Package for Evidence-Informed Interventions: Effective workplace tobacco cessation interventions. Retrieved March 18<sup>th</sup> 2010, from <http://cancer.ca/ken>.*

Canadian Cancer Society's Steering Committee. (2009). *Canadian cancer statistics 2009*.

Toronto, Ontario: Canadian Cancer Society.

Cancer Care Ontario. (2002). *Cancer system quality index - prevention*. Retrieved February 16, 2009, from <http://csqi.cancercare.on.ca/csqiprevention/>

Chapman, L. (2006). Employee participation in workplace health promotion and wellness programs: How important are incentives, and which work best? *North Carolina Medical Journal*, 67(6), 431-432.

Colditz, G.,A, DeJong, W., Hunter, D.,J, Trichopoulos, D., & Willett, W.,C. (1996). Harvard report on cancer prevention. *Cancer Causes Control*, 7 (Supplement), S1-S55.

Courneya, K. S., & Friedenreich, C. M. (2007). Physical activity and cancer control. *Seminars in Oncology Nursing*, , 23(4) 242-252.

- Critelli, M., Halvorson, G., Insel, T., Kondo, M., Kyprianou, M. & Lord, J. (2008). *Preventing the spread of chronic disease.*, 2009, from [http://www.weforum.org/en/knowledge/KN\\_SESS\\_SUMM\\_22635?url=/en/knowledge/KN](http://www.weforum.org/en/knowledge/KN_SESS_SUMM_22635?url=/en/knowledge/KN)
- Curry, S. J., Byers, T., & Hewitt, M. E. (2003). *Fulfilling the potential of cancer prevention and early detection.* Washington, DC: National Academy Press.
- Danaei, G., Vander Hoorn, S., Lopez, A. D., Murray, C. J. L., & Ezzati, M. (2005). Causes of cancer in the world: Comparative risk assessment of nine behavioural and environmental risk factors. *The Lancet*, 366(9499), 1784-1793.
- Domon, A., Xihong Ai, Leurent, H., & Nayyar, S. (2008). *Working towards wellness: Measuring results.* Geneva: World Economic Forum.
- Duke University Human Resources. (2005). *Live for life at duke: Services & programs.*, 2009, from <http://www.hr.duke.edu/eohs/livelie/services.html>.
- Dubois, N., Jetha, N., Robinson, K., Szuto, I., Wan, G., and Wilkerson, T. 2008. Canadian Best Practices Initiative Methodology Background Paper. Available online <http://cbpp-pcpe.phac-aspc.gc.ca/pubs/CBPI-methodology.pdf>.
- Emmons, K. M., Linnan, L. A., Shadel, W. G., Marcus, B., & Abrams, D. B. (1999). The working healthy project: A worksite health-promotion trial targeting physical activity, diet, and smoking. *Journal of Occupational and Environmental Medicine*, 41(7), 545-555.
- Engbers, L. H., van Poppel, M. N. M., & van Mechelen, W. (2007). Modest effects of a controlled worksite environmental intervention on cardiovascular risk in office workers. *Preventive Medicine*, 44(4), 356-362.

- Ezzati, M., Lopez, A. D., Rodgers, A., Vander Hoorn, S., & Murray, C. J. L. (2002). Selected major risk factors and global and regional burden of disease. *The Lancet*, 360(9343), 1347-1360.
- Farris, R. P., Haney, D. M., & Dunet, D. O. (2004). Expanding the evidence for health promotion: Developing best practices for WISEWOMAN. *Journal of Women's Health*, 13(5), 634-643.
- Food, I., & Board, N. (2004). Dietary reference intakes for water, potassium, sodium, chloride, and sulfate.
- Friedenreich, C. M. (2001). Physical activity and cancer prevention. *Cancer Epidemiology Biomarkers & Prevention*, 10(4), 287-301.
- Friedenreich, C. M., & Orenstein, M. R. (2002). Physical activity and cancer prevention: Etiologic evidence and biological mechanisms. *Journal of Nutrition*, 132(11), 3456S-3464S.
- Goetzel, R., & Ozminkowski, R. (2008). The health and cost benefits of worksite health promotion. *Annual Review of Public Health*, 29, 303-323.
- HDR Decision Economics. (2009). *Cancer prevention: Economic assessment of workplace wellness initiatives. final report*. Alberta: Alberta Health Services.
- Health Canada. (2004). *Chapter II: The cornerstones of successful workplace health programs. A guide to developing and implementing the workplace health system in medium and large business.*, 2009, from <http://www.hc-sc.gc.ca/ewh-semt/pubs/occup-travail/model-guide-modele/chapter2-chapitre2-eng.php>
- Health Canada. (2009). *Federal tobacco control strategy*. Retrieved February 16, 2010, from <http://www.hc-sc.gc.ca/hc-ps/tobac-tabac/about-apropos/role/federal/strateg-eng.php>
- Hemp, P. (2004). Presenteeism: At work-but out of it. *Harvard Business Review*, 82(10), 49-58.

Hunnicutt, D. (2009, The cost of wellness: A WELCOA expert interview with dr. ron goetzel.

*Absolute Advantage: The Workplace Wellness Magazine, 7 (10)*

Hunt, M.K., Barbeau, E., Lederman, R., Stoddard, R., Chetkovich, C., Goldman, R., Wallace, L., & Sorenson, G. (2007). Process evaluation results from the Healthy Directions-Small Business study. *Health Education & Behavior, 34, 90.*

Industry Canada. (2010). *Canadian industry statistics (CIS)*. Retrieved February 16, 2010, from [http://www.ic.gc.ca/eic/site/cis-sic.nsf/eng/h\\_00006.html](http://www.ic.gc.ca/eic/site/cis-sic.nsf/eng/h_00006.html).

Johnson JA, Vermeulen SU & Hugel G. (2007). “Chapter 1: Background and Methods”: In Alberta Diabetes Atlas 2007: Institute of Health Economics. 2007: pp. 3-8.

Joint WHO/FAO Expert Consultation on Diet, Nutrition and Prevention of Chronic Diseases (2002: Geneva, Switzerland). (2003). *Diet, nutrition and prevention of chronic diseases* (Expert Report No. WHO Technical Report Series 916). Geneva: World Health Organization. Retrieved from [http://www.who.int/hpr/NPH/docs/who\\_fao\\_expert\\_report.pdf](http://www.who.int/hpr/NPH/docs/who_fao_expert_report.pdf)

Kahan, B., & Goodstadt, M. (2002). *The IDM manual for using the Interactive Domain Model approach to health promotion*. Centre for Health Promotion, University of Toronto.

Koffman, D. M., Lee, J. W., Hopp, J. W., & Emont, S. L. (1998). The impact of including incentives and competition in a workplace smoking cessation program on quit rates. *American Journal of Health Promotion, 13(2)*, 105-111.

Leurent, H., Reddy, K. S., Voute, J., & Yach, D. (2008). Wellness in the workplace: A multi-stakeholder health-promoting initiative of the world economic forum. *American Journal of Health Promotion : AJHP, 22(6)*, 379-80, ii.

- Makrides, L. (2004, February 2004). The case for workplace health promotion. *Newsbeat CARC (Canadian Association of Cardiac Rehabilitation)*, 12 (1)
- Mutrie, N., Carney, C., Crawford, F., Aitchison, T., & Whitelaw, A. (2002). Walk in to work out: A randomized controlled trial of self help intervention to promote active commuting. *Journal of Epidemiology and Community Health*, 56, 407-412.
- National Cancer Institute. (2009). *The treatwell 5-a-day program*. Retrieved Feb 16 2010, 2010, from [http://rtips.cancer.gov/rtips/program Details.do?programId=173315&topicId=102266&cgId=](http://rtips.cancer.gov/rtips/program%20Details.do?programId=173315&topicId=102266&cgId=)
- National Cancer Institute. (2009) SEER Training Modules: What is Cancer. Bethesda, Maryland: NCI Retrieved December 18, 2009 from <http://training.seer.cancer.gov/disease/cancer/>.
- Ontario Public Health Association. (2002). *Guide to nutritional promotion in the workplace*. Toronto, Ontario: Nutrition Resource Centre, Ontario Public Health Association.
- Patterson, R. E., Kristal, A. R., Glanz, K., McLerran, D. F., Hebert, J. R., Heimendinger, J., et al. (1997). Components of the working well trial intervention associated with adoption of healthful diets. *American Journal of Preventive Medicine*, 13(4), 271-276.
- Plotnikoff, R. C., Prodaniuk, T. R., Fein, A. J., & Milton, L. (2005). Development of an ecological assessment tool for a workplace physical activity program standard. *Health Promotion Practice*, 6(4), 453.

Public Health Agency of Canada. (2005). Building a national diabetes strategy:

Synthesis of research and collaborations: Consultation Findings. Ottawa, Ontario: PHAC.

Retrieved August 18, 2009 from [http://www.phac-aspc.gc.ca/publicat/bnds-bsnd/pdf/bnds-bsnd-vol\\_1-eng.pdf](http://www.phac-aspc.gc.ca/publicat/bnds-bsnd/pdf/bnds-bsnd-vol_1-eng.pdf).

Public Health Agency of Canada. (2010). Canadian Best Practices Portal. Available online at

<http://cbpp-pcpe.phac-aspc.gc.ca/index-eng.html>.

Public Health Agency of Canada. (2009). Tracking Heart Disease & Stroke in Canada. Ottawa, Ontario: PHAC.

Raine, K. D. (2005). Determinants of healthy eating in Canada. *Canadian Journal of Public Health*, 96(3), S8-S14.

Reardon, J. (1998). The history and impact of worksite wellness. *Nursing Economics*, 16(3), 117-121.

Rogers, C. J., Colbert, L. H., Greiner, J. W., Perkins, S. N., & Hursting, S. D. (2008). Physical activity and cancer prevention: Pathways and targets for intervention. *Sports Medicine*, 38(4), 271-296.

Rundle, A. (2005). Molecular epidemiology of physical activity and cancer. *Cancer Epidemiology Biomarkers & Prevention*, 14, 227-236.

Russell, N. (2009). *New zealand ministry of health: Workplace wellness, A literature review for NZ Well@work*New Zealand Ministry of Health.

Simpson, J. M., Oldenburg, B., Owen, N., Harris, D., Dobbins, T., Salmon, A., et al. (2000). The Australian national workplace health project: Design and baseline findings. *Preventive Medicine*, 31(3), 249-260.

Sorensen, G., Barbeau, E. M., Stoddard, A. M., Hunt, M. K., Goldman, R., Smith, A., et al. (2007).

Tools for health: The efficacy of a tailored intervention targeted for construction laborers.

*Cancer Causes and Control*, 18(1), 51-59.

Sorensen, G., Hunt, M. K., Cohen, N., Stoddard, A., Stein, E., Phillips, J., et al. (1998). Worksite

and family education for dietary change: The treatwell 5-a-day program. *Health Education*

*Research*, 13(4), 577.

Sorensen, G., Stoddard, A., Peterson, K., Cohen, N., Hunt, M.,K, Stein, E., et al. (1999).

Increasing fruit and vegetable consumption through worksites and families in the treatwell 5-

a-day study. *American Journal of Public Health*, 89(1), 54.

Sparling, P. B. (2010). Worksite health promotion: Principles, resources, and challenges.

*Preventing Chronic Disease*, 7(1), 1-6.

Statistics Canada. (2008). *2006 Census of Canada*. Ottawa, Ontario: Statistics Canada.

Stein, C., & Colditz, G. (2004). Modifiable risk factors for cancer. *British Journal of Cancer*,

90(2), 299.

The Health Communication Unit (THCU). (2003). *Supporting comprehensive workplace health*

*promotion in Ontario project – effectiveness of workplace health promotion*. Toronto: Centre

for Health Promotion, Univeristy of Toronto. Retrieved from

[www.thcu.ca/Workplace/documents/Effectiveness%20rec%20from%20SR%20March%206-03%20May%2021%20JT%20fixed%20pgs.doc](http://www.thcu.ca/Workplace/documents/Effectiveness%20rec%20from%20SR%20March%206-03%20May%2021%20JT%20fixed%20pgs.doc)

The Health Communication Unit (THCU). (2004a). *Influencing the organizational environment to*

*create healthy workplaces*. Toronto: Centre for Health Promotion, University of Toronto.

Retrieved from

[www.thcu.ca/workplace/documents/influencing\\_org\\_envir\\_infopackv\\_1.1.FINAL.pdf](http://www.thcu.ca/workplace/documents/influencing_org_envir_infopackv_1.1.FINAL.pdf)

The Health Communication Unit (THCU). (2004b). *An introduction to comprehensive workplace health promotion. Version 1.1*. Toronto: Centre for Health Promotion, University of Toronto.

The Health Communication Unit (THCU) University of Toronto. (2004). *Well-regarded initiatives for workplace health and wellness promotion*. Toronto, Ontario: The Health Communication Unit (THCU) University of Toronto.

Vainio, H', Bianchini, F. (2002). *Weight control and physical activity*. Vainio, H', Bianchini, F (Ed.), . Lyon, France: IARC Press.

White, K., & Jacques, P. H. (2007). Combined diet and exercise intervention in the workplace: Effect on cardiovascular disease risk factors. *AAOHN Journal*, 55(3), 109.

Windsor, R. A., Lowe, J. B., & Bartlett, E. E. (1988). The effectiveness of a worksite self-help smoking cessation program: A randomized trail. *Journal of Behavioral Medicine*, 11(4), 407-421.

Working Towards Wellness team of the World Economic Forum. (2008). *Working towards wellness: Global example*. Geneva: World Economic Forum.

World Cancer Research Fund/American Institute for Cancer Research. (2007). Food, nutrition, physical activity, and the prevention of cancer: A global perspective.

World Health Organization. (2005). *Facing the facts: The impact of chronic disease in Canada, in "preventing chronic disease, a vital investment"*World Health Organization. Retrieved from [http://www.who.int/chp/chronic\\_disease\\_report/media/CANADA.pdf](http://www.who.int/chp/chronic_disease_report/media/CANADA.pdf)

---

World Health Organization. (2009). Cancer Fact Sheet. Geneva, Switzerland: WHO,

Retrieved August 18, 2009 from <http://www.who.int/mediacentre/factsheets/fs297/en/index.html>.

World Health Organization. (2009). *Cancer prevention*. Retrieved November 10, 2009, from

[www.who.int/cancer/prevention/en/](http://www.who.int/cancer/prevention/en/)

World Health Organization. (2003). *Obesity and overweight: Global strategy on diet, physical activity and health*. Retrieved November 25, 2009, from

[www.who.int/dietphysicalactivity/media/en/gsf\\_obesity.pdf](http://www.who.int/dietphysicalactivity/media/en/gsf_obesity.pdf)

World Health Organization. (2010). Preventing Chronic Disease: a vital investment

factsheet. Retrieved May 14<sup>th</sup> 2010, from [http://who.int/chp/chronic\\_disease\\_report/en/](http://who.int/chp/chronic_disease_report/en/).

World Health Organization, W. (2002). The world health report 2002: Reducing risks, promoting healthy life.

---

## Appendix A: GLOSSARY

**Absenteeism** – is a habitual [pattern](#) of absence from a duty, obligation. In the context of this report absenteeism is the absence from the workplace.

**Algorithms** – Formulas of instructions and directions as to how the information gathered by the tool is to be used.

**BMI Body Mass Index**- Used to calculate the relationship between weight and height by dividing an individual's weight in kg's by their height in meters squared. This is then used to categorize individuals into four categories: underweight, normal weight, overweight or obese.

**Best practices** – Those practices that have been evaluated under controlled conditions (with or without randomization) and found to be effective. In addition, the practices also meet the practicality criteria (such as cost effectiveness, availability and fit.)

**Burden of Disease** – The Burden of Disease is the impact of a health problem in an area measured by financial cost, mortality, morbidity, or other indicators. It is often quantified in terms of [quality-adjusted life years](#) (QALYs) or [disability-adjusted life years](#) (DALYs), which combine the burden due to both death and morbidity into one index. This allows for the comparison of the disease burden due to various risk factors or diseases. It also makes it possible to predict the possible impact of health interventions.

**Comprehensive workplace wellness (health promotion)** – An approach to protecting and enhancing the health of employees that relies and builds upon the efforts of employers to create a supportive management under and upon the efforts of employees to care for their own well-being.

**Determinants of health** – Conditions in the psychosocial, socioeconomic, and physical environments which create conditions for ill health or wellness (i.e., housing, peace and security, belonging to a community, adequate income, food, clean air, water and soil, safe working conditions.)

**Employee Assistance Provider (EAP or EFAP)** – An Employee (and Family) Assistance Provider is a confidential and voluntary support service that can help employees and (families) to solve all different kinds of problems and challenges in your life. Employees and (families) can receive support through a wide variety of issue-based health and wellness resources as defined in the service agreement. E (F) AP providers are contracted by organizations to support employees and costs of such a service are paid for by the employer. E(F)AP services generally provide short term advice and counseling and or referrals to more long term services as required.

**Effectiveness** – This criterion refers to whether the intervention had a positive outcome or impact evaluation using a good quality research design.

**Epidemiology** – The study of the distribution and determinants of health-related states or events in specified populations, and the application of this study to the control of health problems.

**Evaluation** – The systematic collection, analysis, and reporting of information about a program in a way that enables practitioners and others to learn from their experience. Specifically, program evaluation generates the information needed to guide the development of more effective comprehensive workplace health promotion initiatives.

**Evidence Based Practice** - Evidence-based practice refers to the use of research and scientific studies as a base for determining the best practices in a field.

**Formative research:** Formative research is the basis for developing and improving strategies for influencing behavior change and risk factor reduction. It helps researchers identify and understand the characteristics of target populations that influence their decisions and actions.

**Health Risk Appraisal (HRA)** – An HRA is an assessment tool used by health promoters to evaluate a person's health. The appraisal usually takes the form of an extended questionnaire that enquires into personal lifestyle, and personal and family medical history. The appraisal may also include a physical examination, laboratory tests of blood chemistry (e.g. of cholesterol level), blood pressure, and physical fitness levels. The outcome is a profile identifying specific risks (e.g. heavy smoking and sedentary lifestyle) with strategies and targets for reducing the risks.

**Incentives** – Benefits that motivate an individual or organizational decision maker in favour of a particular choice.

**Incidence** - Incidence is a measure of the risk of developing some new condition within a specified period of time.

**Lifestyle practices** – One of three aspects of comprehensive workplace health promotion, which generally refers to efforts to change the employees' behaviour. Examples of issues to encourage employees to act upon may include tobacco use, alcohol and drug use, nutrition, immunization and physical activity.

**Morbidity:** Any departure from a state of physiological or psychological well-being. Disease, sickness and illness may be similarly defines and synonyms.

**Mortality:** A fatality or death. In epidemiology or health statistics this can be measured in the number of deaths or the mortality rate (i.e. deaths divided by population).

**Mortality Rate-** The ratio of deaths in an area to the entire population of that same area.

**Neoplasm** - An abnormal growth of tissue. The word neoplasm is not synonymous with [cancer](#). A neoplasm may be benign or malignant.

**Occupational health and safety (OHS)** – One of three aspects of comprehensive workplace health promotion, which generally refers to efforts to reduce the physical and chemical hazards in a work environment with the goal of reducing work-related injury, illness and disability. Many activities fall under the category of occupational health and safety, including ergonomics, injury prevention, hazard identification and control, emergency response problems, disability case management, and medical services.

**Presenteeism** - is the opposite of [absenteeism](#). In contrast to absenteeism, when employees are absent from work, presenteeism discusses the problems faced when employees come to work in spite of [illness](#), which can have similar negative repercussions on business performance. It can also refer to the expectation of employers for their employees to be present at work regardless of whether any work is available or accomplished.

**Population Health** - Population health is an approach to health that aims to improve the health of a total population and to reduce health inequities among population groups. In order to reach these objectives, it looks at and acts upon the broad range of factors and conditions that have a strong influence on our health

**Risk Factor** - A risk factor is a variable associated with an increased [risk](#) of [disease](#) or [infection](#).

**Situational Analysis**– A situational analysis influences planning in invaluable ways by examining the legal and political environment, stakeholders, the health needs of the population, the literature and previous evaluations, as well as the overall vision for the project. The phrase “situational assessment” is now used rather than the previous term “needs assessment”. This is intentional. The new terminology is used as a way to avoid the common pitfall of only looking at challenges and difficulties. Instead it encourages considering the strengths of and opportunities for individuals and communities. In a health promotion context, this also means looking at socio-environmental conditions and broader determinants of health.

Survey Key Terms:

**Workplace Wellness** is created by the combined efforts of employers and employees to prevent chronic disease and to promote the health and well-being of people at work.

**Workplace Wellness Initiatives** are defined as formal and informal workplace programs, services and policies that influence the way employees act in relation to their health and well-being. Examples include quit smoking programs, partnerships, educational sessions on eating healthy, access to exercise facilities, and monetary or time allowances.

---

**Workplace Wellness Policies** are defined as organizational guidelines and procedures aimed at promoting healthy living and preventing chronic disease. These policies may include provisions for compliance with health and safety legislation and/or the fulfillment of corporate wellness strategies that have no legislative mandate.

**Occupational health and safety** approaches have traditionally been concerned with health protection. These approaches include ergonomics, injury prevention, hazard identification and control, emergency response programs, disability case management and medical services (THCU, 2003).

Approaches related to **voluntary health practices** help people modify their personal lifestyle behaviours. These approaches include healthy eating, physical activity, tobacco cessation, stress-time management and, immunization (THCU, 2003).

**Organizational change** approaches are commonly undertaken to increase job satisfaction and corporate productivity. These approaches focus on leadership style, management practices, social support and pervading culture (THCU, 2004).

## Appendix B: Key Alberta demographics

### Introduction

This section is intended to provide information on the demographic composition of the province of Alberta related to workplace health. By producing a clearer picture of the Alberta population we will be able to identify key target workplaces to focus programming towards these target areas in order to maximize the impact of future cancer prevention efforts. By analyzing population demographics we can also identify trends over time or areas for interest to make informed decisions related identifying priorities and resource allocation. Understanding the distribution of the population will also assist health planners understand the potential economic and health impacts and extent to which their decisions affect the broader community.

### Key demographics characteristics of Alberta

General demographic information for Alberta was obtained from the 2006 Census of Canada (Statistics Canada, 2008). This information provides a portrait of the general population of Alberta in terms of its gender, age, marital status, education attainment, and labour force composition, all of which have demonstrated linkages to cancer incidence and mortality.

As identified in the AHS Strategic Direction 2009-2012 report, the population of Alberta is growing substantially. In 2006, the total population of Alberta was 3,290,350, an increase of 315,543 from the 2001 population of 2,974,807. This represents an 11 % growth in population from 2001 compared to the national growth of 5.4%. This population growth presents a challenge to the health system to provide accessible and high quality health care to this growing Alberta population. Men and women make up equal proportions of the Alberta population, with 1,646,800 males (50.1%) compared to 1,643,550 females (49.9%).

**Table A:** Population and dwelling counts, 2006

	<b>Number</b>
Population in 2006	3,290,350
Population in 2001	2,974,807
Total private dwellings, 2006	1,335,745
Private dwellings occupied by usual residents, 2006	1,256,192
Population density per square kilometre, 2006	5.1
Land area (square km), 2006	6,400,044.57

According to the 2006 Census, Alberta also has slightly younger population than the Canadian average with 19.2% of Alberta's population being between the ages of 0 and 14 compared to the national proportion of 17.7%. By far the largest majority of the Albertan population (70.1%) were

between the key working ages of 15 and 64 ; again slightly above the national proportion of 68.6%. Finally, 10.8% of the Alberta population were above the age of 65 (n = 353,420) compared with the national average of 13.7 %. The majority of these individuals in this age group would no longer be in the workforce and will not be the focus of workplace wellness programming.

**Table B:** Age characteristics of the Alberta population, 2006 Census

Age	n	%
0-4	202,600	6.2
5-9	204,110	6.2
10-14	224,810	6.8
15-24	489,285	14.9
25-34	474,830	14.4
35-44	506,135	15.4
45-54	512,205	15.6
55-64	322,970	9.8
65-74	189,330	5.8
75-84	121,795	3.7
85 and over	42,295	1.3

## Conclusion

From our review of key demographics of Alberta, we have learned that Alberta population is growing with the majority of Albertans (70.1%) being between the ages of 15 and 64. According to the 2006 Census, 1,942,825 of Albertans, aged 15 and older, were in the labour force and 1,859,965 were employed. These findings provided evidence that the workplace offers great potential for a population level approach to modify risk factors relevant to the prevention of cancer and other chronic diseases. Additionally, half of all Albertans worked in one of the following industries: retail trade (10.7%), health care and social assistance (9.2%), construction (8.7%), professional, scientific and technical services (7.6%), manufacturing (7.2%), and mining and oil and gas extraction (6.9%). These findings provided further valuable insight into the province's labour profile and guided our survey of workplace wellness initiatives in Alberta, another critical component of this situational analysis that will be examined Chapter 4.

## Appendix C: Workplace Wellness Survey – Final

### RESPONDENT INFORMATION - PRECODED

<b>Organization Name:</b>	
<b>Industry Classification:</b> What industrial classification best describes your organization?	<input type="checkbox"/> Construction <input type="checkbox"/> Health care and social assistance <input type="checkbox"/> Manufacturing <input type="checkbox"/> Mining and oil and gas extraction <input type="checkbox"/> Professional, scientific and technical services <input type="checkbox"/> Retail trade
<b>Contact Name:</b>	
<b>Title:</b>	
<b>Department:</b>	
<b>Phone:</b>	
<b>Email Address:</b>	

### INTRODUCTION

Good morning/afternoon, my name is {?} and I am calling on behalf of the Cancer Prevention Program of Alberta Health Services from the research firm Oraclepoll Limited.

The Cancer Prevention Program of Alberta Health Services has commissioned our firm to conduct a survey to learn about current and past workplace wellness policies and practices in the top six industries across Alberta. We are most interested in how organizations promote healthy behaviours through tobacco cessation, physical activity, healthy eating, and achieving and maintaining healthy body weights.

Based on your preference, a number of survey options are available. You can choose to complete an online, telephone or face to face survey. This survey should take no more than 30 minutes of your time to complete. Since your participation in this survey is entirely voluntary, you may withdraw at anytime or choose not to answer specific questions.

All individual answers you provide will be kept completely confidential and anonymous. The analysis and reporting of the survey results will be done in aggregate.

All survey responses will be stored in a secured area on a password protected computer for seven years. After this, all survey responses will be deleted.

Upon completion of this project, results will be made available and you will be informed of ways to access the information.

If you have any questions or concerns about your participation in this survey, please contact the Principal Investigator for the survey: Jocelyn Strath, Research Associate of the Cancer Prevention Program, (P) 403-355-3281, (E) [jocestra@cancerboard.ab.ca](mailto:jocestra@cancerboard.ab.ca).

The survey project has been approved by the Alberta Health Services Cancer Research Ethics Board.

Do you willingly give your consent to having understood the previous information regarding participation in the survey and that you agree to participate in the survey as a participant?

- Yes, I consent  
 No, I do not consent

**YES, PROCEED TO NEXT QUESTION  
NO WITH BUT, PROVIDE EXTRA INFORMATION AND PRINCIPAL  
INVESTIGATOR'S CONTACT INFORMATION  
NO/REFUSAL, ASK WHY AND POLITELY TERMINATE IF JUSTIFICATION  
CANNOT BE RECTIFIED**

Is now a convenient time to conduct the survey?

**YES PROCEED TO GENERAL PREAMBLE  
TOO BUSY OR INCONVENIENT SCHEDULE CALL BACK  
REFUSAL OFFER ALTERNATIVE**

- WEB ONLINE CONFIRM EMAIL TO SEND LINK PASSWORD
- MAIL OUT CONFIRM LOCATION
- FAX CONFIRM NUMBER

### **GENERAL PREAMBLE**

Keep the following definitions in mind when answering the questions in this survey.

**Workplace Wellness** is created by the combined efforts of employers and employees to prevent chronic disease and to promote the health and well-being of people at work.

**Workplace Wellness Initiatives** are defined as formal and informal workplace programs, services and policies that influence the way employees act in relation to their health and well-being. Examples include quit smoking programs, partnerships, educational sessions on eating healthy, access to exercise facilities, and monetary or time allowances.

**Workplace Wellness Policies** are defined as organizational guidelines and procedures aimed at promoting healthy living and preventing chronic disease. These policies may include provisions

for compliance with health and safety legislation and/or the fulfillment of corporate wellness strategies that have no legislative mandate.

First of all, I have a few questions that will help the Cancer Prevention Program to better understand your organization.

<p><b>Estimated Number of Employees:</b></p> <p>Approximately how many individuals are currently employed by your organization?</p>	
<p><b>Employee Status with the Surveying Organization:</b></p> <p>Can you tell me if you are a...?</p>	<p><input type="checkbox"/> Permanent employee of this organization,  <input type="checkbox"/> A contract employee of this organization or an  <input type="checkbox"/> External service provider <b>SKIP TO Q1</b></p>
<p><b>Employee Hours with the Surveying Organization:</b></p> <p>Are you a full-time or part-time employee?</p>	<p><input type="checkbox"/> Full-time (30 or more hours per week)  <input type="checkbox"/> Part-time (1 to 29 hours per week)</p>

Thank you now we will begin the survey.

Q1. Does your organization currently offer any workplace wellness initiatives? Again, these types of initiatives can include programs, services or policies focused on the health and well-being of employees.

- Yes                      ASK Q2  
 No                              SKIP TO Q3  
 Do not know              SKIP TO Q3

Q2. In a few words describe the workplace wellness initiatives that are currently active in your organization?

**OPEN / ACCEPT MULTIPLE RESPONSES**

Q3. In the past, have workplace wellness initiatives ever been offered to the employees in your organization?

- Yes                      ASK Q4

- No [SKIP TO Q5 IF YES IN Q1] [POLITELY TERMINATE IF NO OR DK IN Q1]
- Do not know [SKIP TO Q5 IF YES IN Q1] [POLITELY TERMINATE IF NO OR DK IN Q1]

Q4. In a few words describe the past workplace wellness initiatives that your organization offered to employees?

**OPEN / ACCEPT MULTIPLE RESPONSES**

Q5. Have any of the workplace wellness initiatives that your organization currently offers and/or has offered in the past been designed to address each of the following health behaviours or concerns?

**READ/ACCEPT MULTIPLE RESPONSES**

A. Tobacco use/smoking behaviour

- Yes
- No SKIP Q26-30
- Do not know SKIP Q26-30

B. Physical activity, exercise and active living

- Yes
- No SKIP Q31-35
- Do not know SKIP Q31-35

C. Nutrition and healthy eating

- Yes
- No SKIP Q36-40
- Do not know SKIP Q36-40

D. Achieving and maintaining a healthy body weight

- Yes
- No SKIP Q41-45
- Do not know SKIP Q41-45

E. Chronic disease screening (e.g., cancer, heart disease, diabetes, etc.)

- Yes
- No
- Do not know

Q6. Has your organization ever offered a workplace wellness initiative that was coordinated by an external service provider?

- Yes ASK Q7 AND Q8

- No                                      SKIP TO Q9  
 Do not know                              SKIP TO Q9

Q7. Who was the provider that coordinated the initiative?

**OPEN**

Q8. What initiative did the provider coordinate?

**OPEN**

### **Management**

The next few questions are about the role of your organization's executive and management teams in promoting workplace wellness to employees. The executive team refers to the people responsible for the major administration and decision making at the organization, while the management team refers to those directly influencing the daily tasks of employees.

Q9. Using a scale of one to five where one represents "strongly disagree" and five represents "strongly agree"; please rate your level of agreement with each of the following statements.

A. My organization's mission statement and/or philosophy include its position on workplace wellness. Again, workplace wellness is created by the combined efforts of employers and employees to prevent chronic disease and to promote the health and well-being of people at work.

- 1-strongly disagree  
 2-disagree  
 3-neither agree nor disagree  
 4-agree  
 5-strongly agree  
 Do not know

B. My organization encourages its employees to adopt and maintain healthy lifestyles.

- 1-strongly disagree  
 2-disagree  
 3-neither agree nor disagree  
 4-agree                                      ASK Q10  
 5-strongly agree                              ASK Q10  
 Do not know

C. The executive team in my organization supports workplace wellness initiatives.

- 1-strongly disagree  
 2-disagree

- 3-neither agree nor disagree
- 4-agree
- 5-strongly agree
- Do not know

D. The managers in my organization support workplace wellness initiatives.

- 1-strongly disagree
- 2-disagree
- 3-neither agree nor disagree
- 4-agree
- 5-strongly agree
- Do not know

E. My organization has a written policy regarding workplace wellness.

- 1-strongly disagree
- 2-disagree
- 3-neither agree nor disagree
- 4-agree
- 5-strongly agree
- Do not know

F. A committee within the organization plans, monitors, and evaluates workplace wellness initiatives.

- 1-strongly disagree
- 2-disagree
- 3-neither agree nor disagree
- 4-agree
- 5-strongly agree
- Do not know

Q10. In a few words, how does your organization support its employees to adopt and maintain healthy lifestyles?

**OPEN**

Q11. Are all employees encouraged to participate in workplace wellness initiatives?

- Yes ASK Q12
- No SKIP TO Q13
- Do not know SKIP TO Q13

Q12. How are all employees encouraged to participate in workplace wellness initiatives?

**OPEN**

Q13. Are the majority of workplace wellness initiatives offered, always during working hours, frequently during work hours, occasionally during working hours, rarely during working hours or does it depend on the initiative?

- Always during work hours
- Frequently during work hours
- Occasionally during work hours
- Rarely during work hours
- Depends on the initiative
- Do not know

Q14. Does your organization track the improvements resulting from workplace wellness initiatives?

- Yes ASK Q15
- No SKIP TO Q17
- Do not know SKIP TO Q17

Q15. Does your organization track the improvements resulting from workplace wellness initiatives every three months, six months, yearly, every two years, never or at other intervals?

- Every three months ASK Q16
- Every six months ASK Q16
- Every year ASK Q16
- Every two years ASK Q16
- Never SKIP TO Q17
- Other **RECORD** ASK Q16
- Do not know SKIP TO Q17

Q16. How does your organization track the improvements resulting from workplace wellness initiatives?

**OPEN**

Q17. Are there opportunities for employees to express opinions about what they like or dislike in current workplace wellness initiatives or what they want to have in future workplace wellness initiatives?

- Yes ASK Q18
- No SKIP TO Q19

Do not know      SKIP TO Q19

Q18. Please describe how employees are able to provide feedback or suggestions related to workplace wellness initiatives.

**OPEN**

Q19. Has your organization ever surveyed its employees regarding their health and well-being?

- Yes                      ASK Q20  
 No                         SKIP TO Q22  
 Do not know          SKIP TO Q22

Q20. Did this survey examine any of the following health behaviours?

**READ / ACCEPT MULTIPLE RESPONSES**

- Tobacco use/smoking behaviour  
 Physical activity, exercise and active living  
 Nutrition and healthy eating  
 Achieving and maintaining a healthy body weight  
 Chronic disease screening (e.g., cancer, heart disease, diabetes, etc.)  
 Are there any others?

**OPEN**

Q21. Were the results of this survey used to influence your organization's workplace wellness initiatives?

- Yes  
 No  
 Do not know

22. I am going to read a list of health behaviours that I would first like you to rank in their importance to current or past workplace wellness initiatives offered within your organization using a scale from one being not at all important to five being very important.

- A. Tobacco use/smoking behaviour  
B. Physical activity, exercise and active living  
C. Nutrition and healthy eating  
D. Achieving and maintaining a healthy body weight

23. Next I would like you to rank these health behaviours according to your perception of importance in addressing them through workplace wellness initiatives within your organization. Please use the same scale from one being not at all important to five being very important.

- A. Tobacco use/smoking behaviour  
B. Physical activity, exercise and active living

- C. Nutrition and healthy eating
- D. Achieving and maintaining a healthy body weight

Q24. Does your organization offer a health care spending account or an extended health benefit plan to employees?

- Yes ASK Q25
- No SKIP TO Q26
- Do not know SKIP TO Q26

Q25. Does the health care spending account or extended health benefit plan offered to employees cover services and fees for any of the following areas?

**READ / ACCEPT MULTIPLE RESPONSES**

- Basic dental coverage (e.g., cleanings and basic check-ups)
- Chiropractic services
- Diagnostic service expenses (e.g., laboratory, radiological and other diagnostic procedures)
- Dietitian/nutrition services
- Enrolment to weight loss/management organizations
- Fitness subsidy (e.g. equipment, sports league fees, gym memberships)
- Healthy meal/snack allowances
- Naturopathic services
- Physiotherapy services
- Prescription drug expenses
- Quitting smoking and/or tobacco use through medical coverage for cessation aids
- Quitting smoking and/or tobacco use through counselling or classes

**Health Behaviours Addressed Through Workplace Wellness Initiatives**

**Tobacco Use/Smoking Behaviour**

**[IF YES IN Q5A, ASK Q26-30]**

This section deals with tobacco use and smoking behaviour. Tobacco use involves the smoking of cigarettes and cigars and the consumption of other tobacco-based products, such as chewing tobacco.

Q26. Please tell me if each of the following workplace wellness initiatives that address the tobacco use and smoking behaviours of your employees 1-do not exist, 2-are currently in development or 3-are currently in place in your organization.

- A. There is a workplace policy on smoke-free indoor workplaces
- 1 – Initiative or corresponding aspect does not currently exist.

- 2 – Initiative or corresponding aspect is currently in development.
- 3 – Initiative or corresponding aspect is currently in place.
- Do not know

B. There is a policy on smoke-free work vehicles.

- 1 – Initiative or corresponding aspect does not currently exist.
- 2 – Initiative or corresponding aspect is currently in development.
- 3 – Initiative or corresponding aspect is currently in place.
- Do not know

C. There is a policy on smoke-free outdoor spaces, meaning no smoking is allowed on work property.

- 1 – Initiative or corresponding aspect does not currently exist.
- 2 – Initiative or corresponding aspect is currently in development.
- 3 – Initiative or corresponding aspect is currently in place.
- Do not know

D. The organization enforces the provincial Tobacco Reduction Act which prohibits smoking within five metres of a doorway, window that opens, or an air intake in all locations of the organization.

- 1 – Initiative or corresponding aspect does not currently exist.
- 2 – Initiative or corresponding aspect is currently in development.
- 3 – Initiative or corresponding aspect is currently in place.
- Do not know

E. Employees who attempt to quit smoking receive support from the organization in the form of financial incentives.

- 1 – Initiative or corresponding aspect does not currently exist.
- 2 – Initiative or corresponding aspect is currently in development.
- 3 – Initiative or corresponding aspect is currently in place.
- Do not know

F. Employees who attempt to quit smoking receive support from the organization in the form of time off working hours to attend classes and/or counselling sessions.

- 1 – Initiative or corresponding aspect does not currently exist.
- 2 – Initiative or corresponding aspect is currently in development.
- 3 – Initiative or corresponding aspect is currently in place.
- Do not know

G. Information (e.g., via intranet, email, information sessions) on quitting smoking is available to employees of the organization.

- 1 – Initiative or corresponding aspect does not currently exist.
- 2 – Initiative or corresponding aspect is currently in development.
- 3 – Initiative or corresponding aspect is currently in place.
- Do not know

Q27. The organization has the financial resources available to develop tobacco use initiatives for employees.

- Yes
- No
- Do not know

Q28. In the past year, an assessment of the tobacco use of employees has been conducted (e.g., number of employees who currently smoke or have smoked in the past).

- Yes
- No
- Do not know

Q29. The initiatives that address tobacco use and smoking of employees are evaluated at least once per year.

- Yes
- No
- Do not know

Q30. Does your organization currently offer any of the following workplace wellness initiatives that are directed towards the tobacco use and smoking behaviours of your employees?

**READ / ACCEPT MULTIPLE RESPONSES**

- Quit Smoking Buddy System where a partnership is established between the participant and a non-/ex-smoker friend
- Cigarettes are not available for purchase at the worksite
- Group counselling where fellow employees are the facilitators
- Individual counselling for skills training
- Maintenance sessions where continued cessation is encouraged and self-control techniques are emphasized
- Self-help materials (e.g., Canadian Cancer Society's For Smokers Who Don't Want to Quit, or Smokers Who Want to Quit or Health Canada's On the Road to Quitting)
- Telephone counselling with a counsellor
- Are there any others?

**OPEN**

**Physical Activity**

**[IF YES IN Q5B, ASK Q31-35]**

This section deals with physical activity. The more physically active people are, the healthier they will be. Being *physically active* means participating in moderate or vigorous activity for at least 30 minutes each day, at least five days per week. Examples of moderate physical activity are brisk walking, dancing or yoga, while examples of vigorous physical activity are running, martial arts or playing sports such as soccer, ice hockey, or others where you work up a sweat and breathe hard.

Q31. Please tell me if each of the following workplace wellness initiatives that address physical activity, exercise, and active living of your employees 1-do not exist, 2-are currently in development or 3-are currently in place in your organization.

A. There is a workplace policy to promote physical activity, exercise and active living in the organization.

- 1 – Initiative or corresponding aspect does not currently exist.
- 2 – Initiative or corresponding aspect is currently in development.
- 3 – Initiative or corresponding aspect is currently in place.
- Do not know

B. Employees who attempt to improve their physical fitness receive support from the organization in the form of financial incentives.

- 1 – Initiative or corresponding aspect does not currently exist.
- 2 – Initiative or corresponding aspect is currently in development.
- 3 – Initiative or corresponding aspect is currently in place.
- Do not know

C. Employees have access to on-site exercise facilities that are financially subsidized and maintained by your organization.

- 1 – Initiative or corresponding aspect does not currently exist.
- 2 – Initiative or corresponding aspect is currently in development.
- 3 – Initiative or corresponding aspect is currently in place.
- Do not know

D. The organization promotes employees to walk or cycle to and/or from work.

- 1 – Initiative or corresponding aspect does not currently exist.
- 2 – Initiative or corresponding aspect is currently in development.

- 3 – Initiative or corresponding aspect is currently in place.
- Do not know

E. Information (e.g., print materials, intranet, email, and information sessions) about physical activity, exercise, and active living is provided to employees of the organization.

- 1 – Initiative or corresponding aspect does not currently exist.
- 2 – Initiative or corresponding aspect is currently in development.
- 3 – Initiative or corresponding aspect is currently in place.
- Do not know

F. Exercise activities are organized for employees during work hours.

- 1 – Initiative or corresponding aspect does not currently exist.
- 2 – Initiative or corresponding aspect is currently in development.
- 3 – Initiative or corresponding aspect is currently in place.
- Do not know

G. Exercise activities are organized for employees before or after work time.

- 1 – Initiative or corresponding aspect does not currently exist.
- 2 – Initiative or corresponding aspect is currently in development.
- 3 – Initiative or corresponding aspect is currently in place.
- Do not know

Q32. The organization has the financial resources available to develop physical activity and exercise initiatives for employees.

- Yes
- No
- Do not know

Q33. In the past year, an assessment of the physical fitness of employees has been conducted (e.g., number of currently active or physically fit employees).

- Yes
- No
- Do not know

Q34. The initiatives that promote physical activity, exercise, and active living to employees are evaluated at least once per year.

- Yes
- No
- Do not know

Q35. Does your organization currently offer or promote any of the following workplace wellness initiatives that are directed towards physical activity, exercise, and active living of employees?

**READ / ACCEPT MULTIPLE RESPONSES**

- Access to showers and change rooms for the employees after they exercise
- Access to stairwells that employees can use for exercise
- Bicycle storage racks at the worksite
- Financial incentives to walk or bike to work
- Informational and motivational materials on being physically active
- Onsite exercise classes
- Personal training
- Physical fitness assessments (e.g., grip strength, flexibility or aerobic capacity tests)
- Print materials geared at lifestyle activity as opposed to structured exercises
- Route information to outdoor jogging trails or walking trails near the worksite
- Sessions on skill-building and behaviour change around being physically active
- Signage to encourage stair use over the elevator or escalator
- Stretch breaks during meetings
- Walking meetings
- Are there any others?

**OPEN**

**Nutrition**

**[IF YES IN Q5C ASK Q36-40]**

This section deals with nutrition and eating healthy, which means eating in a balanced way with a daily diet of at least five servings of fruits and vegetables, eating foods with a high whole grain and fibre content, not eating too much junk food, eating moderate amounts when you are hungry and stopping when you are full, and choosing foods lower in fat, sugar and salt.

Q36. Please tell me if each of the following workplace wellness initiatives that address the nutrition, healthy eating, and the dietary needs of your employees 1-do not exist, 2-are currently in development or 3-are currently in place in your organization.

- A. There is a workplace policy to promote nutrition and healthy eating in the organization.
- 1 – Initiative or corresponding aspect does not currently exist.
  - 2 – Initiative or corresponding aspect is currently in development.
  - 3 – Initiative or corresponding aspect is currently in place.
  - Do not know

B. There is a workplace policy or guideline to provide healthy food choices at catered meetings and events in the organization.

- 1 – Initiative or corresponding aspect does not currently exist.
- 2 – Initiative or corresponding aspect is currently in development.
- 3 – Initiative or corresponding aspect is currently in place.
- Do not know

C. Employees have access to nutritious, healthy meal and snack options for purchase at the worksite.

- 1 – Initiative or corresponding aspect does not currently exist.
- 2 – Initiative or corresponding aspect is currently in development.
- 3 – Initiative or corresponding aspect is currently in place.
- Do not know

D. There is a workplace policy or guideline to provide healthy food choices in the retail food service outlets, such as the cafeteria, in the organization.

- 1 – Initiative or corresponding aspect does not currently exist.
- 2 – Initiative or corresponding aspect is currently in development.
- 3 – Initiative or corresponding aspect is currently in place.
- Do not know

E. Employees who attempt to improve their personal diets and nutrition behaviours receive support from the organization in the form of financial incentives.

- 1 – Initiative or corresponding aspect does not currently exist.
- 2 – Initiative or corresponding aspect is currently in development.
- 3 – Initiative or corresponding aspect is currently in place.
- Do not know

F. Financial support is provided by the organization for employees to consult with qualified nutrition professionals, such as dietitians and nutritionists.

- 1 – Initiative or corresponding aspect does not currently exist.
- 2 – Initiative or corresponding aspect is currently in development.
- 3 – Initiative or corresponding aspect is currently in place.
- Do not know

G. Information (e.g., print materials, intranet, email, and information sessions) about nutrition, healthy eating, and diet is provided to all employees of the organization.

- 1 – Initiative or corresponding aspect does not currently exist.
- 2 – Initiative or corresponding aspect is currently in development.
- 3 – Initiative or corresponding aspect is currently in place.
- Do not know

Q37. The organization has the financial resources available to develop nutrition and healthy eating initiatives for employees.

- Yes
- No
- Do not know

Q38. In the past year, an assessment of the diets and nutrition behaviours of employees has been conducted (e.g., amount of vegetable and fruit employees consume).

- Yes
- No
- Do not know

Q39. The initiatives that promote nutrition and healthy eating to employees are evaluated at least once per year.

- Yes
- No
- Do not know

Q40. Does your organization currently offer any of the following workplace wellness initiatives that are directed towards the nutrition, healthy eating, and dietary needs of employees?

**READ / ACCEPT MULTIPLE RESPONSES**

- Retail food service outlets, like the cafeteria, offer prompts for healthy eating choices (e.g., nutrition information or healthy eating facts)
- Education (e.g., skill-building sessions and demonstrations)
- Employees receive a copy of the Canada's Food Guide
- Family involvement (e.g. activities that foster participation of family members in meal planning, food shopping, or food preparation)
- Free vegetables and fruit available
- Free drinking water available
- Healthy cooking classes are organized for employees
- Individualized counselling involving discussions and planning around healthy eating and/or dietary needs of the employee
- Lunch room(s) provided
- Pricing incentives for healthy food choices (e.g. healthier food choices are priced lower)
- Vending machines do not offer soft drinks, fast food, or sweets
- Vending machines provide healthy food choices (e.g., low fat food choices, juice, and water)
- Are there any others?

**OPEN**

**Healthy Body Weight****[IF YES IN Q5D, ASK Q41-45]**

This section deals with healthy body weight. A healthy body weight can be maintained when the calories an individual consumes from food are equal to those he or she is able to expend through physical activity.

Q41. Please tell me if each of the following workplace wellness initiatives that address how employees can achieve and/or maintain a healthy body weight 1-do not exist, 2-are currently in development or 3-are currently in place in your organization.

A. There is a workplace policy to promote employees achieving and maintaining a healthy body weight in the organization.

- 1 – Initiative or corresponding aspect does not currently exist.
- 2 – Initiative or corresponding aspect is currently in development.
- 3 – Initiative or corresponding aspect is currently in place.
- Do not know

B. Employees who attempt to achieve and/or maintain a healthy body weight receive support from the organization in the form of financial incentives.

- 1 – Initiative or corresponding aspect does not currently exist.
- 2 – Initiative or corresponding aspect is currently in development.
- 3 – Initiative or corresponding aspect is currently in place.
- Do not know

C. Information (e.g., via intranet, email, information sessions) about achieving and maintaining a healthy body weight is provided to employees of the organization.

- 1 – Initiative or corresponding aspect does not currently exist.
- 2 – Initiative or corresponding aspect is currently in development.
- 3 – Initiative or corresponding aspect is currently in place.
- Do not know

Q42. The organization has the financial resources available to develop healthy body weight initiatives for employees.

- Yes
- No
- Do not know

Q43. In the past year, an assessment on the body weights of employees has been conducted (e.g., number of employees with a body mass index [BMI] of 25-29.9 [overweight] or 30 or greater [obese]).

- Yes  
 No  
 Do not know

Q44. The initiatives that address healthy body weights are evaluated at least once per year.

- Yes  
 No  
 Do not know

Q45. Does your organization currently offer any of the following workplace wellness initiatives that are directed towards achieving and maintaining healthy body weights of employees?

**READ / ACCEPT MULTIPLE RESPONSES**

- Commercial weight management program implemented at the worksite and delivered by an external service provider, such as Weight Watchers  
 Food addiction and eating disorder assistance services, such as Overeater's Anonymous  
 Group counselling that incorporates weight loss/maintenance, nutrition, and physical activity counselling  
 Individual counselling that incorporates weight loss/maintenance, nutrition, and physical activity counselling  
 Lifestyle coach who helps with management and motivation  
 Weight loss and/or control programming  
 Weight loss or bariatric surgery services  
 Weight loss supplements covered under an health care expense account or extended health benefits  
 Are there any others?

**OPEN**

**Information Resources**

Q46. I am going to read a list of information delivery vehicles or sources and after each one please tell me if they are currently being used to provide employees information on tobacco usage, physical activity, nutrition and healthy body weight.

A. Bulletin board

- Tobacco                      Yes      No      Do not know

- Physical activity      Yes         No         Do not know     
 Nutrition              Yes         No         Do not know     
 Healthy body weight    Yes         No         Do not know

**B. Email/online bulletin**

- Tobacco                  Yes         No         Do not know     
 Physical activity        Yes         No         Do not know     
 Nutrition                  Yes         No         Do not know     
 Healthy body weight    Yes         No         Do not know

**C. Employee letter**

- Tobacco                  Yes         No         Do not know     
 Physical activity        Yes         No         Do not know     
 Nutrition                  Yes         No         Do not know     
 Healthy body weight    Yes         No         Do not know

**D. Group information sessions**

- Tobacco                  Yes         No         Do not know     
 Physical activity        Yes         No         Do not know     
 Nutrition                  Yes         No         Do not know     
 Healthy body weight    Yes         No         Do not know

**E. Guest speaker from an external organization**

- Tobacco                  Yes         No         Do not know     
 Physical activity        Yes         No         Do not know     
 Nutrition                  Yes         No         Do not know     
 Healthy body weight    Yes         No         Do not know

**F. Health fair**

- Tobacco                  Yes         No         Do not know     
 Physical activity        Yes         No         Do not know     
 Nutrition                  Yes         No         Do not know     
 Healthy body weight    Yes         No         Do not know

**G. Internal homepage**

- Tobacco                  Yes         No         Do not know     
 Physical activity        Yes         No         Do not know

- Nutrition                      Yes      No      Do not know     
 Healthy body weight        Yes      No      Do not know

H. Magazines

- Tobacco                        Yes      No      Do not know     
 Physical activity              Yes      No      Do not know     
 Nutrition                        Yes      No      Do not know     
 Healthy body weight        Yes      No      Do not know

I. Newsletter

- Tobacco                        Yes      No      Do not know     
 Physical activity              Yes      No      Do not know     
 Nutrition                        Yes      No      Do not know     
 Healthy body weight        Yes      No      Do not know

J. One-on-one information sessions

- Tobacco                        Yes      No      Do not know     
 Physical activity              Yes      No      Do not know     
 Nutrition                        Yes      No      Do not know     
 Healthy body weight        Yes      No      Do not know

K. On-site nurse

- Tobacco                        Yes      No      Do not know     
 Physical activity              Yes      No      Do not know     
 Nutrition                        Yes      No      Do not know     
 Healthy body weight        Yes      No      Do not know

L. Pay slips

- Tobacco                        Yes      No      Do not know     
 Physical activity              Yes      No      Do not know     
 Nutrition                        Yes      No      Do not know     
 Healthy body weight        Yes      No      Do not know

M. Telephone

- Tobacco                        Yes      No      Do not know     
 Physical activity              Yes      No      Do not know     
 Nutrition                        Yes      No      Do not know     
 Healthy body weight        Yes      No      Do not know

N. Wellness resource library (e.g., wellness pamphlets and brochures, books and magazines, relaxation chair with videos and/or audio CDs)

- Tobacco                      Yes         No         Do not know
- Physical activity              Yes         No         Do not know
- Nutrition                      Yes         No         Do not know
- Healthy body weight        Yes         No         Do not know

O.      Wellness station (e.g., blood pressure machine, weight scales, posted exercises for stretching)

- Tobacco                      Yes         No         Do not know
- Physical activity              Yes         No         Do not know
- Nutrition                      Yes         No         Do not know
- Healthy body weight        Yes         No         Do not know

P.      Word of mouth

- Tobacco                      Yes         No         Do not know
- Physical activity              Yes         No         Do not know
- Nutrition                      Yes         No         Do not know
- Healthy body weight        Yes         No         Do not know

Q.      Are there any other sources for providing information on each of these areas?

**OPEN**

Q47.    Where do you or did you get guidance and advice for your workplace wellness initiatives?

- Alberta Health Services (this includes the former Alberta Cancer Board, Alberta Alcohol and Drug Abuse Commission, and Alberta Mental Health Board)
- Alberta Health and Wellness
- Employee assistance provider
- External service provider
- Health Canada
- Internet
- Print media
- Public Health Agency of Canada
- Television
- Workers Compensation Board
- Are there any others?

**OPEN**

The Cancer Prevention Program of Alberta Health Services is committed to supporting Alberta's workplaces. We aim to provide support through the delivery, evaluation, and promotion of effective workplace wellness initiatives related to specific health behaviours (e.g. tobacco use, physical activity, nutrition and healthy body weights). Through the following questions, we will be able to understand how we can support Alberta's workplaces in improving and maintaining the health of their employees.

Q48. Which of the following services and resources would your organization benefit from in order to promote and ensure the success of your workplace wellness initiatives?

**READ / ACCEPT MULTIPLE RESPONSES**

- Cafeteria/meal modification
- Educational materials
- Funding
- Group counselling
- Health screening materials
- Individual counselling
- Literature on a specific topic
- Motivational materials
- Programming guidance
- Skills training
- Telephone counselling
- Tracking template to monitor and evaluate your program

Q49. In what other ways can Alberta Health Services help your organization to improve and maintain the health of your employees?

**OPEN**

Q50. Would you be interested in being contacted at a later date by Alberta Health Services' Cancer Prevention Program for future work related to workplace wellness?

- Yes      ASK Q51
- No      SKIP TO Q52

Q51. Confirm respondent information.

Q52. Finally, do you have any additional comments or feedback?

**OPEN**

You have now completed the survey and on behalf of Alberta Health Services, thank you for your participation! If you would like more information about workplace wellness in Alberta, please visit [www.albertahealthservices.ca](http://www.albertahealthservices.ca).

---

## **Appendix D: Profiles of Alberta's Six Largest Industries**

The following industry profiles are based on the North American Industry Classification System (NAICS) Canada 2002. The NAICS is a comprehensive, hierarchal system used by Canada, Mexico and the United State that is updated every five years to provide common definitions of industrial structure of the three countries. NAICS is constructed within a supply-based or production-oriented framework where establishments using similar production processes to produce goods and services are grouped to form industries.

### **Industries classified as goods are:**

1. Agriculture, Forestry, Fishing and Hunting
2. Construction
3. Manufacturing
4. Mining and Oil and Gas Extraction
5. Utilities

### **Industries classified as services are:**

1. Accommodation and Food Services
2. Administrative and Support, Waste Management and Remediation Services
3. Arts, Entertainment and Recreation
4. Educational Services
5. Finance and Insurance
6. Health Care and Social Assistance
7. Information and Cultural Industries
8. Management of Companies and Enterprises
9. Other Services (except Public Administration)
10. Professional, Scientific and Technical Services
11. Public Administration
12. Real Estate and Rental and Leasing
13. Retail Trade
14. Transportation and Warehousing
15. Wholesale Trade

NAICS is further broken down to encompass information about sectors, sub-sectors, industry groups, and industries.

For the purpose of this report, six of the NAICS industries will be focused upon. These six industries were selected because they comprise half of Alberta's workforce, and represent the greatest opportunity to impact workplace wellness programming.

1. Retail trade
2. Health care and social assistance
3. Construction
4. Professional, scientific and technical services
5. Manufacturing
6. Mining and oil and gas extraction

*In the following section the top six industries in Alberta have been presented in order of the size of the industry, with the largest employment industry (retail trade) being described first. This section will define each of the industries and provide Alberta specific demographics wherever possible.*

### **Industry descriptions**

The following sections and tables include important information for each of the six specified industries. Data includes number of employees per industry and percentage of total number of Albertans employed in each industry. Furthermore, the number of employees by gender and age, along with establishment size are also described.

Employment size categories for both goods and service producers were obtained from the Canadian Business Patterns database have been re-grouped into Canadian Industry Statistics (**Table C and Table D**). Employment size categories differ depending on whether the business is a goods-producer versus a services-producer. Note the distinction at the small and medium size categories (Industry Canada, 2010).

#### **Table C:** Goods-producers are categorized under the following employment size ranges

---

Micro: 1-4 employees  
 Small: 5-99 employees  
 Medium: 100-499 employees  
 Large: 500 + employees

---

#### **Table D:** Service-producers are categorized under the following employment size ranges

---

Micro: 1-4 employees  
 Small: 5-49 employees  
 Medium: 50-499 employees  
 Large: 500 + employees

---

### **Retail trade**

The Retail Trade sector includes establishments engaged in retailing merchandise, (usually without modification) and providing services for the sale of such goods. Primarily, the Retail Trade is comprised of two types: store and non-store retailers.

Examples of establishments included under this classification include office supply stores, computer and software stores, building materials dealers, plumbing supply stores, and electrical supply stores. Gasoline services stations, automotive dealers, and mobile home dealers are considered store retailers (Industry Canada, 2010).

Further to the sale of merchandise, some retailers at store-level provide after-sales services, including repair and installation. Examples of these retailers include new car dealerships, appliance retailers or electronics stores.

**Table E: Retail trade<sup>9</sup>**

Number of employees	198,135
Percent of AB workforce employed	10.7%
Age Characteristics	15-24 years: 66,415 25-54 years: 106,815 55 years and over: 24,910
Establishment size	Micro (1-4 employees): 5,333 Small (5-49 employees): 8,930 Medium (50 to 499 employees): 856 Large (Over 500 employees): 3

### **Health care and social assistance**

The Health Care and Social Assistance sector provides individuals with access to both of these services, although it is sometimes difficult to distinguish boundaries between the two activities. Industries represented in these areas are best represented on a continuum, starting with those establishments providing medical care (exclusively), continuing with those providing health care and social assistance, and finally finishing with those providing only social assistance.

**Table F: Health care and social assistance<sup>10</sup>**

Number of employees	170,750
---------------------	---------

<sup>9</sup> Note that for each industry, figures for number of employees, percent of AB workforce employed, and age characteristics are from Statistics Canada (2006) Census data. Establishment size data was obtained from Industry Canada (2010) and may not directly align due to differences in reporting classifications by Statistics Canada.

---

Percent of AB workforce employed	9.2%
Age Characteristics	15-24 yrs: 17,455 25-54 yrs: 125,865 55+ yrs: 27,430
Establishment size	Micro (1-4 employees): 5,658 Small (5-49 employees): 3,832 Medium (50 to 499 employees): 454 Large (Over 500 employees): 22

---

### **Construction**

Included in the construction sector are companies engaged primarily in the construction of buildings or engineering projects (e.g., highways and new buildings). Also represented in this industry are companies that are involved in the preparation of sites for new construction, and those subdividing land for sale.

Establishments or individuals involved in the field are commonly referred to as general contractors, but may include design-builders, construction managers, turnkey contractors, or (in cases where two or more establishments jointly secure a general contract) joint-venture contractors.

Work in the construction industry may include new work, additions, alterations, or maintenance and repairs. Activities performed within this industry are generally managed at a fixed location, but actual work takes place at various project sites.

### **Table G: Construction<sup>10</sup>**

---

Number of employees	161,540
Percent of AB workforce employed	8.7%
Age Characteristics	15-24 yrs: 30,635 25-54 yrs: 109,395 55+ yrs: 21,515
Establishment size	Micro (1-4 employees): 12, 595 Small (5-99 employees): 7,114 Medium (100 to 499 employees): 265 Large (Over 500 employees): 26

---

### Professional, scientific and technical services

The Professional, Scientific, and Technical Services industry is responsible for the delivery of specialized activities for individuals under this classification. Activities within the industry necessarily require a high level of training, experience and expertise.

This industry classification includes a variety of services that require professional training and/or certification or registration. Examples include (but are not limited to): bookkeeping, architectural, engineering, and specialized design services; computer services; legal advice and representation; accounting, and payroll services; consulting services; research services; advertising services; veterinary services. Professionals within the sector may choose to offer their services to clients in a variety of industries, including households.

**Table H: Professional, scientific and technical services<sup>10</sup>**

Number of employees	141,495
Percent of AB workforce employed	7.6%
Age Characteristics	15-24 yrs: 14,245 25-54 yrs: 104,520 55+ yrs: 22,725
Establishment size	Micro (1-4 employees): 18,181 Small (5-49 employees): 4,025 Medium (50 to 499 employees): 353 Large (Over 500 employees): 14

### Manufacturing

The Manufacturing sector describes activities that produce new materials and products through physical, mechanical and/or chemical transformation of substances. The manufacturing sector is often recognized for its plants, factories, or mills.

Included in this classification is the assembling of component parts are manufactured, however there is a necessary distinction between this and activities in the construction industries.

Commonly, work done in this industry requires the use of power-driven machines and materials-handling equipment. Uniquely, this industry also includes businesses like bakeries, candy stores or custom tailors that engage in selling products from the same location in which they are produced. Establishments in the manufacturing sector may process materials or out-source (contract) to other establishments to process their materials.

**Table I: Manufacturing<sup>10</sup>**

Number of employees	134,160
Percent of AB workforce employed	7.2%
Age Characteristics	15-24 yrs: 18,800 25-54 yrs: 98,755 55+ yrs: 16,605
Establishment size	Micro (1-4 employees): 1,892 Small (5-99 employees): 3,146 Medium (100 to 499 employees): 283 Large (Over 500 employees): 17

## Mining and Oil and Gas Extraction

### Mining

This sector is responsible for the extraction of naturally occurring mineral solids, such as coal and ores; liquid minerals, such as crude petroleum; and gases, such as natural gas.

Establishments are necessarily classified according to the natural resource that is mined. Included, are companies that develop the site, extract natural resources, and/or those that prepare the minerals are included under this industry classification.

The term mining is used broadly to include quarrying, well operations, beneficiating (e.g., crushing, screening, washing, and flotation), and all other activities performed at the mine site. Two basic activities are represented by the mining sector industry. These include mine operation the activities required to support them. The term “mine operation” includes the operation of mines, quarries, or oil and gas wells by a company, or for customers on a contract or fee-for-service. Activities that support the mining industry include exploration (except geophysical surveying) but do not include mine site preparation and construction of oil/gas pipelines.

### Oil and gas extraction

Industries in the Oil and Gas Extraction subsector are responsible for development of oil and gas field properties, including: exploration for crude petroleum and natural gas; drilling, completing, and equipping wells; operating separators, emulsion breakers, desilting equipment, and field gathering lines for crude petroleum and natural gas. Also included in this subsector is the mining and extraction from oil shale and oil sands, natural gas production, and the recovery of sulphur and hydrocarbon fluids.

This classification also includes all additional activities required in the preparation of oil and gas up to the point of shipment.

**Table J: Mining and oil and gas extraction<sup>10</sup>**

Number of employees	146,900
Percent of AB workforce employed	6.9%
Age Characteristics	15-24 yrs: 17,780 25-54 yrs: 97,395 55+ yrs: 12,535
Establishment size	Micro (1-4 employees): 3,895 Small (5-99 employees): 2147 Medium (100 to 499 employees): 167 Large (Over 500 employees): 26